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ABSTRACT

This report summarizes findings of the second phase of a study designed to evaluate how well the NDEA Title IV Graduate Fellowship Program has achieved 1 of its stated objectives: to increase the number of well qualified college and university teachers by providing up to 3 years of financial aid to doctoral students preparing for academic careers. Responses to questionnaires mailed to graduate students who received the NDEA Fellowships starting in the 1960-61 and 1961-62 academic year and to a group of "comparable" graduate students form the basis of this report. The results indicate that the Program has been fulfilling its sponsors' objectives. A sizeable majority of responding NDEA Fellows completed the doctorate and entered full-time employment as college or university teachers. Moreover, these NDEA Fellows required less time than did other graduate students to complete the doctorate. Even those without the doctorate had contributed to Program objectives in that nearly half were employed in academic institutions. This survey supplements findings of the first phase of the study which was based entirely on secondary data. (Author/JS)

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PHASE II

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by

Engin I. Holmstrom
and
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Laure M. Sharp, Study Director
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TABLE OF CONTENTS

ACKNOWLEDGMENT ii

LIST OF TABLES iv

LIST OF ILLUSTRATIONS. x

Chapter

I. INTRODUCTION. 1

II. CHARACTERISTICS OF NDEA FELLOWS 9

III. RATES OF DOCTORAL COMPLETION AND DURATION OF PREDOCTORAL STUDIES. 38

Aspects of Predoctoral Study
Factors Related to Doctoral Completion
Factors Contributing to the Duration of Doctoral Completion
Doctoral Completion and Duration of Predoctoral Study Among those in the Comparison Group

IV. EMPLOYMENT. 84

V. NDEA FELLOWS WITHOUT THE DOCTORATE. 111

VI. RESIGNED FELLOWS. 137

VII. COMPARISON GROUP. 158

VIII. SUMMARY AND CONCLUSION. 169

APPENDIXES

A. TABLES. A-1

B. METHODOLOGY B-1

C. QUESTIONNAIRE C-1

D. 1. CODES FOR FIELD OF STUDY
2. REGION AND STATE CODE D-1

E. INSTITUTIONS GRANTING NDEA FELLOWSHIPS WHICH PARTICIPATED IN THIS STUDY. E-1

F. LETTER TO DEANS RE SELECTION OF COMPARISON GROUP STUDENTS F-1

LIST OF TABLES

Table		Page
II-1.	TYPE OF FELLOWSHIP, COMPLETION OF FELLOWSHIP TENURE, AND INSTITUTIONAL CHANGES BEFORE AND AFTER RECEIPT OF NDEA FELLOWSHIP.	17
II-2.	SEX, RACE, AND PREVIOUS GRADUATE TRAINING OF NDEA RECIPIENTS AND COMPARISON GROUP	18
II-3.	STUDY FIELD AND REGIONAL DISTRIBUTION OF NDEA RECIPIENTS AND COMPARISON GROUP	19
II-4.	PROPORTION OF WOMEN IN EACH STUDY FIELD AND GEOGRAPHIC REGION: NDEA RECIPIENTS AND COMPARISON GROUP	21
II-5.	AGE AND MARITAL STATUS OF NDEA RECIPIENTS AND COMPARISON GROUP.	23
II-6.	RECORD OF MILITARY SERVICE FOR NDEA RECIPIENTS AND COMPARISON GROUP: MEN ONLY	25
II-7.	FATHER'S OCCUPATION, BY RESPONDENT'S STUDY FIELD: NDEA FELLOWS.	26
II-8.	FATHER'S AND MOTHER'S EDUCATION BY RESPONDENT'S STUDY FIELD: NDEA FELLOWS.	27
II-9.	ANNUAL PARENTAL INCOME BY RESPONDENT'S STUDY FIELD: NDEA FELLOWS.	28
II-10.	SIZE OF COMMUNITY OF RESIDENCE AT TIME OF HIGH SCHOOL GRADUATION AND CURRENTLY: NDEA RECIPIENTS AND COMPARISON GROUP.	32
II-11.	UNDERGRADUATE GRADE-LETTER AVERAGE AND GRE SCORES FOR NDEA RECIPIENTS AND COMPARISON GROUP.	34
II-12.	PROPORTION OF RESPONDENTS WHO REPORTED RECEIVING INCOME FROM SELECTED SOURCES DURING FIRST FIVE YEARS OF DOCTORAL STUDY BY DOCTORAL STATUS AND SEX.	36
III-1.	PROPORTION OF RESPONDENTS WHO HAD FULL-TIME COURSEWORK AND DISSERTATION SCHEDULES, BY SEX.	64
III-2.	PROPORTION OF RESPONDENTS COMPLETING DOCTORAL REQUIREMENTS WITHIN THE SECOND OR THIRD YEAR OF DOCTORAL STUDIES: NDEA FELLOWS AND COMPARISON GROUP.	65

LIST OF TABLES--Continued

Table		Page
III-3.	IMPORTANCE OF DOCTORAL DEGREE FOR CAREER SUCCESS: NDEA RECIPIENTS AND COMPARISON GROUP.	66
III-4.	PROPORTION OF NDEA RECIPIENTS AND COMPARISON GROUP RESPONDENTS WHO SAID THE "RIGHT AMOUNT" OF EMPHASIS WAS PLACED ON VARIOUS ASPECTS OF THEIR DOCTORAL PROGRAM	67
III-5.	PROPORTION OF NDEA RECIPIENTS AND COMPARISON GROUP RESPONDENTS WHO PERCEIVED ASPECTS OF THEIR DOCTORAL PROGRAM AS "VERY ADEQUATE" OR "ADEQUATE".	68
III-6.	FACTORS CREATING ANY DIFFICULTY DURING DOCTORAL STUDIES FOR NDEA RECIPIENTS AND COMPARISON GROUP, BY SEX. . .	69
III-7.	PROPORTION OF NDEA AND COMPARISON GROUP DOCTORATES IN EACH STUDY FIELD.	70
III-8.	DOCTORAL COMPLETION OF NDEA FELLOWS: STEPWISE MULTIPLE REGRESSION RESULTS AND ZERO-ORDER CORRELATIONS.	71
III-9.	PROPORTION OF NDEA AND COMPARISON GROUP RESPONDENTS IN VARIOUS STUDY FIELDS WHO THINK DOCTORAL TIME CAN BE SHORTENED	73
III-10.	TIME FROM B. A. TO Ph. D. DEGREE FOR NDEA AND COMPARISON GROUP DOCTORATES	74
III-11.	TIME FROM ENTRY INTO GRADUATE SCHOOL TO Ph. D. DEGREE FOR NDEA AND COMPARISON GROUP DOCTORATES.	75
III-12.	MEAN NUMBER OF YEARS BETWEEN B. A. AND Ph. D. DEGREE FOR NDEA AND COMPARISON GROUP DOCTORATES BY STUDY FIELD: MEN ONLY.	76
III-13.	MEAN NUMBER OF YEARS BETWEEN ENTRY INTO GRADUATE SCHOOL AND DATE OF THE DOCTORATE FOR NDEA AND COMPARISON GROUP DOCTORATES BY STUDY FIELD: MEN ONLY.	77
III-14.	DURATION OF DOCTORAL COMPLETION AMONG NDEA DOCTORATES: ZERO-ORDER CORRELATIONS AND STEPWISE MULTIPLE REGRESSION RESULTS.	78

LIST OF TABLES--Continued

Table		Page
III-15.	DOCTORAL COMPLETION OF COMPARISON GROUP STUDENTS: STEPWISE MULTIPLE REGRESSION RESULTS AND ZERO-ORDER CORRELATIONS.	79
III-16.	DURATION OF DOCTORAL COMPLETION AMONG COMPARISON GROUP DOCTORATES: ZERO-ORDER CORRELATIONS AND RESULTS OF STEPWISE MULTIPLE REGRESSION ANALYSIS	82
IV-1.	TYPE OF CURRENT EMPLOYER BY Ph. D. STATUS AND SEX: NDEA RECIPIENTS AND COMPARISON GROUP.	92
IV-2.	PROPORTION CURRENTLY IN ACADEMIC EMPLOYMENT BY DOCTORAL STATUS AND STUDY FIELD FOR MEN AND BY DOCTORAL STATUS FOR WOMEN	94
IV-3.	IDEAL LONG-RUN CAREER EMPLOYER BY Ph. D. STATUS OF NDEA RECIPIENTS AND COMPARISON GROUP	98
IV-4.	LIKELIHOOD OF TEACHING IN COLLEGE BY Ph. D. STATUS: NDEA RECIPIENTS AND COMPARISON GROUP.	100
IV-5.	LIKELIHOOD OF TEACHING IN COLLEGE BY Ph. D. STATUS AND STUDY FIELD: NDEA AND COMPARISON GROUP RESPONDENTS .	101
IV-6.	FACTORS INFLUENCING ENTRY INTO COLLEGE TEACHING, BY SEX AND Ph. D. STATUS: NDEA RECIPIENTS ONLY.	104
IV-7.	SIMILARITY OF CURRENT EMPLOYMENT FIELD AND DOCTORAL FIELD BY SEX AND Ph. D. STATUS: NDEA AND COMPARISON GROUPS.	106
IV-8.	FACTORS CONTRIBUTING TO ACADEMIC EMPLOYMENT: NDEA FELLOWS EMPLOYED BOTH FULL-TIME AND PART-TIME (ZERO-ORDER CORRELATIONS AND RESULTS OF STEPWISE MULTIPLE REGRESSION ANALYSIS).	107
IV-9.	FACTORS CONTRIBUTING TO ACADEMIC EMPLOYMENT: COMPARISON GROUP RESPONDENTS EMPLOYED BOTH FULL-TIME AND PART-TIME (ZERO-ORDER CORRELATIONS AND RESULTS OF STEPWISE MULTIPLE REGRESSION ANALYSIS)	108
IV-10.	INCOME BY Ph. D. STATUS AND SEX OF FULL-TIME EMPLOYED NDEA AND COMPARISON GROUP RESPONDENTS	110
V-1A.	AGE, SEX, AND MARITAL STATUS: ABD'S.	119
V-1B.	AGE, SEX, AND MARITAL STATUS OF DISCONTINUED STUDENTS .	120

LIST OF TABLES--Continued

Table		Page
V-2.	DISCONTINUED NDEA FELLOWS: REASONS FOR DISCONTINUING STUDIES	121
V-3.	PARENTAL INCOME OF ABD'S AND DISCONTINUED STUDENTS.	122
V-4.	FATHER'S OCCUPATION OF ABD'S AND DISCONTINUED STUDENTS.	123
V-5.	FATHER'S EDUCATION OF ABD'S AND DISCONTINUED STUDENTS	124
V-6.	MOTHER'S EDUCATION OF ABD'S AND DISCONTINUED STUDENTS	125
V-7.	STUDY FIELDS OF ABD'S AND DISCONTINUED STUDENTS	126
V-8.	UNDERGRADUATE GRADE-LETTER AVERAGE OF ABD'S AND DISCONTINUED STUDENTS	127
V-9.	ABD'S: CURRENT WORKLOAD ON DOCTORAL REQUIREMENTS AND ESTIMATED DOCTORAL COMPLETION DATE.	129
V-10.	FACTORS CREATING ANY DIFFICULTY DURING DOCTORAL STUDIES FOR NDEA DOCTORATES, ABD'S AND DISCONTINUED STUDENTS.	132
V-11.	TYPE OF CURRENT EMPLOYER OF ABD'S AND DISCONTINUED STUDENTS.	133
V-12.	PROPORTION CURRENTLY IN ACADEMIC EMPLOYMENT AMONG ABD'S AND DISCONTINUED STUDENTS IN SOME STUDY FIELDS.	134
V-13.	SIMILARITY OF CURRENT EMPLOYMENT FIELD AND DOCTORAL FIELD: ABD'S AND DISCONTINUED STUDENTS	135
V-14.	TYPE OF CURRENT AND IDEAL EMPLOYER AMONG ABD'S AND DISCONTINUED STUDENTS HOLDING AN M. A. DEGREE	136
VI-1.	RESIGNATION RATE AMONG NDEA RECIPIENTS AND AGE DISTRIBUTION OF RESIGNEES	140
VI-2.	MARITAL STATUS OF RESIGNEES	141
VI-3.	STUDY FIELDS OF RESIGNEES	143
VI-4.	REGIONAL DISTRIBUTION OF RESIGNEES.	144
VI-5A.	SIZE OF COMMUNITY OF RESIDENCE AT TIME OF HIGH SCHOOL GRADUATION FOR RESIGNEES.	145
VI-5B.	SIZE OF CURRENT COMMUNITY OF RESIDENCE FOR RESIGNEES.	146

LIST OF TABLES--Continued

Table		Page
VI-6.	RECORD OF MILITARY SERVICE FOR RESIGNEES: MEN ONLY . .	147
VI-7.	REASONS FOR RESIGNING FROM THE NDEA PROGRAM WITHOUT COMPLETING TENURE	148
VI-8.	FATHER'S OCCUPATION OF RESIGNEES.	149
VI-9A.	FATHER'S EDUCATION OF RESIGNEES	150
VI-9B.	MOTHER'S EDUCATION OF RESIGNEES	151
VI-10.	PARENTAL INCOME OF RESIGNEES.	152
VI-11.	UNDERGRADUATE GRADE-LETTER AVERAGE OF RESIGNEES	153
VI-12.	CURRENT ACADEMIC STATUS OF RESIGNEES: PROPORTION WHO HAVE COMPLETED EACH DOCTORAL REQUIREMENT.	154
VI-13.	CURRENT EMPLOYMENT STATUS OF RESIGNEES BY Ph. D. STATUS AND SEX.	155
VI-14.	TYPE OF CURRENT EMPLOYER BY Ph. D. STATUS AND SEX: RESIGNEES	156
VII-1.	STUDY FIELD AND SEX DISTRIBUTION OF MATCHED GROUPS OF DOCTORAL STUDENTS.	163
VII-2.	TIME FROM B. A. TO Ph. D. DEGREE: MATCHED GROUPS OF DOCTORATES BY SEX	164
VII-3.	IMPORTANCE OF THE Ph. D. AND PROPORTION OF DOCTORATES AMONG MATCHED GROUPS OF DOCTORAL STUDENTS	165
VII-4.	TYPE OF CURRENT EMPLOYER FOR MATCHED GROUPS OF DOCTORAL STUDENTS BY Ph. D. STATUS.	166
VII-5.	IDEAL FUTURE EMPLOYER OF MATCHED GROUPS OF DOCTORAL STUDENTS.	167
VII-6.	LONG-RUN CAREER OBJECTIVES OF MATCHED GROUPS OF DOCTORAL STUDENTS	168
A-1.	REGIONAL DISTRIBUTION OF NDEA RECIPIENTS, BY STUDY FIELD	A-2
A-2.	REGION OF HIGH SCHOOL RESIDENCE AND CURRENT RESIDENCE FOR NDEA RECIPIENTS	A-4

LIST OF TABLES--Continued

Table		Page
A-3.	REGION OF HIGH SCHOOL RESIDENCE AND CURRENT RESIDENCE BY Ph. D. STATUS: NDEA MEN	A-5
A-4.	REGION OF HIGH SCHOOL RESIDENCE AND CURRENT RESIDENCE BY Ph. D. STATUS: NDEA WOMEN	A-6
A-5.	DATE OF BACCALAUREATE AND OF M. A. FOR NDEA AND COMPARISON GROUP RESPONDENTS.	A-7
A-6.	ZERO-ORDER CORRELATIONS OF IMPORTANT VARIABLES: NDEA FELLOWS ONLY.	A-8
A-7.	ZERO-ORDER CORRELATIONS OF IMPORTANT VARIABLES: COMPARISON GROUP RESPONDENTS.	A-9
B-1.	RESPONSE RATES TO INITIAL MAILINGS AND FOLLOW-UPS . . .	B-9
B-2.	DISTRIBUTION OF NONACCEPTABLE QUESTIONNAIRES.	B-10

LIST OF ILLUSTRATIONS

Figure		Page
II-1.	LEVEL OF PARENTS' EDUCATION: NDEA FELLOWS AND COMPARISON GROUP STUDENTS	29
II-2.	TYPE OF FATHER'S OCCUPATION: NDEA FELLOWS AND COMPARISON GROUP STUDENTS	30
II-3.	LEVEL OF PARENTS' ANNUAL INCOME AT TIME RESPONDENT RECEIVED THE B. A.: NDEA FELLOWS AND COMPARISON GROUP STUDENTS.	31
III-1.	DOCTORAL COMPLETION RATES FOR NDEA RECIPIENTS BY YEAR OF AWARD AND TENURE STATUS AND FOR COMPARISON GROUP STUDENTS.	63
IV-1.	CURRENT EMPLOYMENT STATUS BY Ph. D. STATUS AND SEX: NDEA RECIPIENTS AND COMPARISON GROUP.	91
IV-2a.	ACTIVITIES CENTRAL TO CURRENT AND IDEAL EMPLOYMENT BY SEX AND DOCTORAL STATUS: 1960-61 NDEA FELLOWS. . . .	95
IV-2b.	ACTIVITIES CENTRAL TO CURRENT AND IDEAL EMPLOYMENT BY SEX AND DOCTORAL STATUS: 1961-62 NDEA FELLOWS. . . .	96
IV-2c.	ACTIVITIES CENTRAL TO CURRENT AND IDEAL EMPLOYMENT BY SEX AND DOCTORAL STATUS: COMPARISON GROUP.	97
V-1.	PROPORTION OF ABD'S AND DISCONTINUED STUDENTS WHO HAVE COMPLETED EACH DOCTORAL REQUIREMENT: NDEA FELLOWS. .	118
V-2.	PROPORTION OF FELLOWS WHO COULD WORK FULL-TIME ON COURSEWORK AND DISSERTATION WORK: DOCTORATES, ABD'S, AND DISCONTINUED STUDENTS.	128
V-3.	PROPORTION AGREEING THAT THE DOCTORAL PROGRAM WAS VERY ADEQUATE OR ADEQUATE IN VARIOUS ASPECTS: DOCTORATES, ABD'S, AND DISCONTINUED STUDENTS.	130
V-4.	PROPORTION AGREEING THAT THE RIGHT AMOUNT OF EMPHASIS WAS PLACED ON VARIOUS ASPECTS OF THE DOCTORAL PROGRAM: DOCTORATES, ABD'S, AND DISCONTINUED STUDENTS.	131
B-1.	RESPONSE RATES AMONG NDEA FELLOWS BY SEX AND YEAR OF AWARD	B-11
B-2.	RESPONSE RATES AMONG NDEA FELLOWS BY MAJOR ACADEMIC FIELDS AND YEAR OF AWARD.	B-12

I. INTRODUCTION

This report summarizes the findings of the second phase of a study designed to evaluate how well the NDEA Title IV Graduate Fellowship Program has achieved one of its stated objectives, that of increasing the number of well qualified college and university teachers by providing up to three years of financial aid to doctoral students preparing for academic careers. Responses to questionnaires mailed to graduate students who received the NDEA Fellowships starting in the 1960-61 and 1961-62 academic years and to a group of "comparable" graduate students form the basis of this report. This survey supplements the findings of the first phase of the study which was based solely on secondary data.[1]

The NDEA Title IV Graduate Fellowship Program was enacted in 1958 in reaction to a nationwide shortage of well qualified college teachers. It has three objectives:[2]

1. To increase the number of college and university teachers by assisting doctoral students preparing for academic careers.

2. To encourage the development and full utilization of the capacity of graduate programs leading to the doctorate.

3. To promote a wider geographical distribution of such programs and to expand the opportunities for doctoral study.

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[1]Laure M. Sharp, Barton Sensenig III, and Lenore Reid, Study of NDEA Title IV Fellowship Program Phase I, Bureau of Social Science Research, March 1968.

[2]From the "Fellowship Allocation Policies" listed on the NDEA Title IV Institutional Application Form--OE 1054 (4-66).

In-house statistics are already available at the Office of Education which show that the distribution of these Fellowships has been in accordance with the last two objectives. The evaluation conducted by BSSR focuses on the first and seeks answers to these questions:

1. What are the characteristics of NDEA Title IV Fellows and how do they compare with those of other doctoral candidates and recipients?

2. How effective are NDEA Fellowships in facilitating completion of the doctorate and in reducing the amount of time required?

3. How effective is the program in increasing the supply of college and university teachers?

The first phase of the study was based entirely upon the analysis of data obtained from the records of the Office of Education covering the first four years of the Title IV Program, from the academic years 1959-60 through 1962-63, and from the Register of Earned Doctorates at the National Academy of Sciences regarding NDEA Fellows who had completed the doctorate by June 1966. NAS records provided some socioeconomic information on NDEA doctorates as well as indicating the duration of doctoral study and the type of employment after receiving the doctorate. Using these data, comparisons were made between two groups (one matched, the other a random sample) of non-NDEA doctoral recipients listed in the NAS register and the NDEA doctorates. Comparisons were also made between the entire group of NDEA Fellows (doctorates and non-doctorates) and a group of non-NDEA graduate students drawn from a National Opinion Research Center study of 1961 college graduates "who intended to obtain the doctorate."[3]

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[3]James A. Davis, Great Aspirations, Chicago: Aldine Publishing Co., 1964.

Although causal inferences could not be proven, the findings of the first phase of the study suggested that the Title IV Program lived up to the goals of its sponsors in that a strong sense of commitment to teaching was found to exist among those who received the Fellowship for three years and obtained the doctorate, even in fields where alternative sources of employment were plentiful. However, this conclusion was based upon a minority of NDEA Fellows who obtained the doctorate in a relatively short time (the maximum possible time span for doctoral completion within the limits imposed by the study was only four years). Thus, the Phase I findings were of limited value and not amenable to broader generalization to the total group of NDEA Fellows. Important questions about the majority who had not completed the doctorate within the short time period studied in Phase I remained to be answered in the second phase of the study: e.g., are the Fellows who had not received the doctorate within the time span covered in the first phase of the study still working toward the degree? Have they entered college teaching without the doctorate? What factors are associated with doctoral completion? What types of Fellows are most likely to discontinue doctoral studies and for what reasons? To obtain the answers to these and other questions it was decided to obtain data directly from NDEA Fellows through a self-administered mail survey questionnaire.

Appendix B contains a detailed description of the design and procedures of the Phase II study. To summarize, addresses of 3,000 1960-61 and 1961-62 NDEA Fellowship recipients[4] and of a comparison group of 1,141 were obtained from the records of the Office of Education, from the deans of graduate institutions participating in the Title IV

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[4]Fifteen hundred Fellowships were awarded each academic year, yielding a total of 3,000 Fellows for the survey.

Program, from the alumni offices of the undergraduate institutions attended by the Fellows, and from the NAS records. These Fellows had received their awards in the second and third years of the NDEA Fellowship Program, and thus had had eight or nine years in which to obtain the doctorate and embark upon a career.[5]

Two methodological problems, discussed at greater length in the Appendix, must be briefly mentioned here. The first concerns the group of Fellows who resigned from the program. Approximately 18 per cent of all Fellows in our cohorts dropped out during the 3-year award period; almost all of them are included in the study, since the study population was defined as including everyone who held the award for at least one semester. Implications of the inclusion of these resigned Fellows will become more apparent later in Section VI, which deals with this group exclusively. As will be seen, many of the resigned Fellows withdrew from doctoral studies altogether when they gave up the NDEA Fellowship. Their presence in the study cohort should be kept in mind by the reader.

The second problem concerns the definition and identification of an appropriate comparison group. In order to refine the evaluation of how well the NDEA program fostered completion of the doctorate, reduced the amount of time required to obtain the degree, and increased the supply of college teachers, a comparison between NDEA Fellows and other doctoral candidates was attempted. Theoretically, such a comparison

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[5]Grantees from the first year of the NDEA Fellowship Program (1959-60) were not selected because they were a small group (1,000), they had higher rates of resignation (28.9%) than later cohorts (about 25% for the next three years), and because administration of the program became better defined after the first year.

calls for a rigorous control group. In reality, such an approach is impossible, for NDEA awardees--like other recipients of fellowships--are a select group to begin with. In awarding fellowships among applicants for graduate study, faculty members and deans tend to choose the best, or who appear to them to be the most promising of their entering graduate students. This "qualitative" difference between fellowship recipients and other entering students may be minimal in the case of highly selective institutions and departments where all those accepted for graduate study are usually exceptionally well qualified in terms of academic criteria; however, it will be recalled that most NDEA Fellowships were deliberately allocated to other than elite institutions. Thus, the ideal experimental situation, one which would enable the evaluator to isolate and pinpoint program effects, would require initially the random assignment of NDEA Fellowships among all first year graduate students and does not exist in this instance.

There are other problems. Receipt of an NDEA Fellowship is contingent on a student's stated intent to obtain the doctorate, study full-time and continuously, and teach eventually in a college or university. A comparable control group an only be identified when NDEA Fellowships are first awarded. It is impossible to reconstruct such a group retrospectively, many years later. Even so, in full knowledge of the difficulties involved in establishing a truly valid comparison group, it was decided to include in the survey a number of non-NDEA students who had enrolled in doctoral programs in the 1960-61 academic year in the hope that their inclusion might yield some suggestive insights--rather than firm conclusions. The names and addresses of 1,141 "comparison group" graduate students were obtained from 63 graduate institutions participating in the Title IV Program.

A self-administered survey questionnaire was mailed to 2,983 NDEA Fellows[6] and to 1,141 comparison group students. After four follow-ups and repeated efforts to update available addresses, 13.9 per cent of the NDEA group and 24.7 per cent of the comparison group could not be reached due to incorrect addresses. However, 69.2 per cent of the total 1960-61 Fellowship recipients and 70.4 per cent of the total 1961-62 Fellowship recipients eventually completed and returned acceptable questionnaires. The response rate for the comparison group was lower (62.1%) with only 39.5 per cent constituting acceptable responses; the remainder turned out to be mostly graduates who had entered programs after 1960. The small number of usable responses caused even further complications regarding the use of the comparison group beyond the objections mentioned above. First, it was obvious that the bias of the selection of the deans would (and did) make the comparison group predominantly a group of Ph.D. recipients, making doctoral completion comparisons between the two survey groups hazardous. Second, although we had asked the deans of the various participating institutions to provide us with names of graduate students comparable to the 1960-61 NDEA Fellows (i.e., first year students who had enrolled in a doctoral program in 1960-61),[7] the results indicated that a disproportionately high percentage of the students in the comparison group (39%) had achieved advanced standing prior to 1960-61; the comparable figure for 1960-61 NDEA Fellows was only 16 per cent. Any comparison between the NDEA and non-NDEA students matched by graduate school experience prior to 1960-61 and matched

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[6] Out of the total 3,000 NDEA Fellows, addresses for seven could not be found and ten were deceased, yielding 2,983 addresses for the initial mailout. See Appendix B for a description of attempts to locate the addresses of the NDEA Fellows and comparion group students in the survey.

[7] See the copy of letter to the deans in Appendix F.

by other variables known to affect doctoral completion (e.g., sex, study fields) would reduce the size of the comparison group to an unacceptable level. In Section VII of this report some findings are presented regarding the comparisons made between the two groups matched by graduate institutions. In the following sections, the total comparison group data are utilized wherever relevant to provide some suggestive comparisons with the attributes and accomplishments of the NDEA Fellows. However, any conclusions reached on the basis of these comparisons must be tempered by the above considerations.

In Section II, the characteristics of the total NDEA group (1960-61 and 1961-62 respondents) are examined. In Section III, doctoral completion rates are presented and the factors related to the completion and duration of doctoral study are discussed. Data regarding the current employment statuses of members of the NDEA group and their future career objectives are presented in Section IV. Section V deals with the NDEA Fellows who had not yet earned the doctorate at the time of the study and gives a brief description of their characteristics, current academic standing, plans for degree completion, and employment status. In Section VI, a description of those NDEA Fellows who resigned from the fellowship program before completing tenure is given, including data regarding reasons for resignation, rates of and plans for degree completion and employment status. Section VII provides further analysis of the comparison group, including the results of an analysis of differences between 1960-61 NDEA Fellows and members of the comparison group, matched by institutions. Finally, in Section VIII the results of the Phase II study are summarized and discussed in terms of the effectiveness of the NDEA program in aiding doctoral students training for an academic career,

in reducing the time required for doctoral completion, and increasing the supply of college and university teachers. In the following sections, quantitative data directly relevant to the discussions are presented at the end of each section while the rest of the tables are presented in Appendix A. Additional appendices present a detailed description of methodology including multiple regression analyses used in the study, the questionnaire, the codes used for study fields and geographic regions and a list of the institutions granting NDEA fellowships which participated in the study.

We would like to conclude this Introduction with a very mundane recommendation. We feel that evaluation studies such as the one presented here are useful and necessary but are becoming increasingly expensive, difficult and time-consuming to carry out because of inadequate respondent addresses, difficulties and delays in obtaining data from some universities and, in some cases, respondent uncooperativeness. Future student support programs, which are for the benefit of individuals as well as institutions, should carry a stipulation alerting recipients to the possibility of future research and evaluation efforts and provide for periodic updating of addresses. Further, comparison groups or institutional data which may be requested for evaluation should be identified at the time fellowship programs are first funded.

II. CHARACTERISTICS OF NDEA FELLOWS

The findings reported in this section differ slightly from those of the first phase of the study which drew on secondary information about the total group of NDEA recipients. The discussions here are based on information obtained from the 69.2 per cent of the 1960-61 and 70.4 per cent of the 1961-62 NDEA Fellows who completed and returned acceptable survey questionnaires.

Tables II-1 to II-4 present data describing the participants in the NDEA program. The majority of the Fellowships were awarded to first year graduate students (84%) and were for three years, starting in the 1960-61 and 1961-62 academic years, respectively. Approximately 11 per cent of each year's group of Fellows had earned a master's or equivalent professional degree prior to the receipt of the award as compared with 36 per cent of the comparison group.[1] Only one-fifth of the students received the NDEA award from the institutions where they had earned their B.A.

The majority of the NDEA respondents stayed at the institution which granted them their Fellowship until they received the doctorate or left graduate school. However, approximately 14 per cent from each year's cohort eventually left the granting institution and enrolled for graduate study elsewhere. Half of these Fellows had resigned from the program; the remainder presumably entered a new graduate program,

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[1]An additional 3.1 per cent of those in the comparison group, and just over 5 per cent of the NDEA Fellows had some graduate training --but no graduate degree--prior to the 1960-61 academic year.

often in a different field, after completing NDEA tenure (see Appendix A, Table A-6).

Approximately 18 per cent of the NDEA respondents from each year's cohort stated that they had resigned from the NDEA program before completing Fellowship tenure. A comparison with the resignee figures reported in the first phase of the study indicated that about half of the resigned Fellows did not respond to the Phase II survey.

The Fellowships were generally evenly distributed across geographic regions with a slight concentration of awards in the East North Central and South Atlantic States; the greatest concentration of students in the comparison group attended graduate institutions located in West North Central states. Half of the awardees were in the Humanities and in the Social Sciences and an overwhelming majority were white.

Male awardees outnumbered women by approximately seven to one, while in the comparison group men outnumbered women about five to one. There was a heavier concentration of women students in the Humanities and in Psychology both in the NDEA group and in the comparison group. The lowest number of awards to women were in Business and in Engineering, while there were no women students in those fields in the comparison group.[2]

At the time of the study, most of the respondents in the NDEA group and in the comparison group were in their mid-thirties and married (Table II-5). During the first year of their predoctoral studies, however,

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[2]For recent documentation of sex differences in study fields for graduate students see Helen S. Astin, The Woman Doctorate in America, New York: Russell Sage Foundation, 1969; Laure M. Sharp, Education and Employment, Baltimore: The Johns Hopkins Press, 1970; and John K. Folger, Helen S. Astin, and Alan E. Bayer, Human Resources and Higher Education, New York: Russell Sage Foundation, 1970.

only about half of the Fellows had been married; as is to be expected, there were twice as many married men as women.[3] Among those in the comparison group, the difference in marital status between men and women at the beginning of their doctoral studies was slightly smaller, with 48 per cent of the men and 36 per cent of the women married.

Fewer than half of the male respondents both in the NDEA group and in the comparison group had completed their military service at the time of the study. About 30 per cent had served before entering graduate school, while approximately 5 per cent had taken time out of their predoctoral studies for military service (Table II-6).

Tables II-7, -8, and -9 present the socioeconomic background of the NDEA and comparison group respondents as based on father's occupation and education, mother's education, and parental income at the time of graduation from the undergraduate institution. For NDEA students in all study fields but the Biological Sciences, the two largest paternal occupational categories were "skilled or semi-skilled workers" (23.1%) and "proprietor, manager, business executive or official" (21.2%). Of NDEA Fellows in the Biological Sciences (which include Agriculture in the classification system used in this study), the largest number had fathers in the "farm owners or farm managers" category; as might be expected, a large proportion of students with a rural or farm background specialized in one of the agricultural sciences in their doctoral program. This same relationship was observed among those in the comparison group.

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[3]See Sharp, 1970, op. cit., for a discussion of the effects of marriage and children on women's entry into graduate school.

Sixty per cent of the fathers of NDEA Fellows had never attended college. The offspring of those with some higher education were more apt to be in the Humanities and Social Sciences than in other fields; 46.5 per cent of the Humanities students and 45.3 per cent of those in the Social Sciences had fathers who had continued with their education after graduating from high school whereas this was true for roughly one-third of the fathers of Fellows in other fields. Similarly, although almost two-thirds of the mothers of NDEA Fellows had not gone beyond high school, mothers of students in the Humanities and Social Sciences were slightly more likely to have attended college than were the mothers of students in other fields.

The median annual parental income of NDEA recipients at the time of college graduation was $8,071, with only about 6 per cent of the parental incomes exceeding $20,000. The lowest median annual parental income ($6,601) was found among students in Education, followed by students in the Biological Sciences; students in Business and in the Social Sciences reported somewhat higher parental incomes.[4]

When the socioeconomic backgrounds of NDEA Fellows and comparison group students were compared, slight but consistent indications were found that the socioeconomic backgrounds of the NDEA Fellows were lower than those of the comparison group students (Figure II-1, -2, and -3). For instance, the fathers of 39 per cent of the NDEA Fellows did not complete high school; the corresponding figure for the comparison group

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[4]These findings reflect the tendency observed by Sharp (Two Years After the College Degree, National Science Foundation, 1963) that students with low status family backgrounds enter relatively low status (or low paying) fields such as Education. See also Amitai Etzioni and Murray Milner, Higher Education in an Active Society: A Policy Report, Bureau of Social Science Research, March 1970.

is 33 per cent. Of the fathers of NDEA Fellows, 23.1 per cent were blue collar workers whereas only 17.5 per cent of the comparison group fathers were similarly employed. Almost half of the comparison group fathers were professionals (48.5%), as compared with only 40 per cent of the NDEA fathers. According to the respondents' estimates of annual parental income, only 12 per cent of the NDEA parents had annual incomes exceeding $15,000 at the time their offspring received their B.A.'s, whereas 17 per cent of those of the comparison group exceeded this figure. When compared with available national statistics on SES levels of the parents of college students, these findings suggest that the NDEA program supported a relatively high proportion of students of low socio-economic origin. While not a stated goal of the original NDEA program, this is a desirable outcome given the recent emphasis on recruitment and financial support--at the graduate level--of students from low-income families.

Data on sizes of towns where NDEA recipients lived at the time of high school graduation indicates that the program has aided students from urban areas (about 45%) as well as non-urban areas (55%), i.e., towns not exceeding 50,000 in population, and rural areas. There were substantially more men than women from rural areas both in the NDEA group and in the comparison group (Table II-10).

A comparison of size of town where a student lived at the time of high school graduation and size of town of current residence showed the expected direction of movement from rural areas to urban centers, with the percentage remaining constant for large towns.

Finally, the majority of the NDEA respondents (approximately 80%) reported having an undergraduate grade letter average of B+ or

better, as against only 58 per cent of the comparison group (Table II-11). In both the NDEA and the comparison groups, women had higher averages than men. The Graduate Record Aptitude Exam scores of the NDEA and the comparison groups were somewhat similar; over 70 per cent of those in both groups reported both verbal and quantitative scores of over 600. However, since only about 25 per cent of the respondents answered this question, the results have low reliability and are not being considered in our subsequent analysis.

Although the question regarding the source of all funds which were utilized by our respondents to meet living and study expenses during each of the first five years of predoctoral study resulted in inconsistent and basically noncomparable data, the results are summarized in Table II-12, simply to show major sources of funds. These were divided into three major categories: "free-money" which includes fellowships or grants which do not require extra work or input and are presumably problem-free from the standpoint of the recipient; "own earnings" which include assistantships and/or other types requiring some input; and finally, "other" sources which include gifts from parents or relatives, spouse's earnings, loans, etc., requiring no input on the part of the respondent, but possibly sources of psychological stress or problems.

As to be expected, during the first three years of graduate school an overwhelming majority of the NDEA Fellows (both doctorates and nondoctorates) were supported by free-money (NDEA grants), while only 40 per cent of the comparison group respondents enjoyed such support. However, the difference between the two groups decreases dramatically after the third year; less than half of the NDEA Fellows have any "free-money" during the fourth year of their predoctoral studies, and

only one-third enjoy any free-money during the fifth year. The comparison group figures are somewhat similar to those of NDEA respondents for the fourth and fifth years of predoctoral studies.

There are no sex differences in the distribution of free-money. However, when personal earnings are compared, it is clear that in each year of graduate study more men than women in both the NDEA and comparison groups have to earn additional money to support themselves, although generally more comparison group respondents than NDEA respondents report earnings of their own.

An examination of these percentages would suggest that while the NDEA Fellowship was ample enough to support the women graduate students, men NDEA recipients had to supplement their Fellowship through "own earnings". The sex difference, however, is reduced after the third year at which time, with the absence of NDEA grant money, nearly as many women as men supported themselves through "own earnings".[5] In general, there is a slight difference in the proportion of doctoral and nondoctoral students who indicate they had both free-money and their own earnings. Doctorates tend to hav free-money more frequently than nondoctorates after the third year o predoctoral studies, while the nondoctorates tend to support themselves more often than doctorates after the third year--raising the possibility, perhaps, that the graduate departments were able to select for financial support those students who showed the most promise (and who did later receive the doctorate).

Generally, the comparison group students tended to support themselves by their own earnings more frequently than the NDEA respondents,

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[5]The study did not seek to determine the actual level of these earnings and how they were obtained. Since NDEA Title IV regulations put rather severe restrictions on work during fellowship tenure, it can be assumed that these earnings resulted primarily from occasional or part-time assignments or summer work.

particularly during the first three years of predoctoral studies. However, the difference was small between the two groups in terms of other sources of funds for all years: less than half of the NDEA Fellows and more than half of the comparison group students had other sources of funds.

TABLE II-1

TYPE OF FELLOWSHIP, COMPLETION OF FELLOWSHIP TENURE, AND INSTITUTIONAL CHANGES BEFORE AND AFTER RECEIPT OF NDEA FELLOWSHIP
(In percentages)

	1960-61 NDEA	1961-62 NDEA
A. Type of Fellowship		
3 - year	93.1	91.6
2 - year	5.9	7.6
1 - year	1.0	0.8
Total %	100.0	100.0
(N)	(1035)	(1055)
B. Fellowship Tenure		
Held fellowship for complete duration of award	82.2	82.5
Resigned before expiration of award	17.8	17.5
Total %	100.0	100.0
(N)	(1039)	(1057)
C. Institutional Changes Between Undergraduate and Graduate Study		
None: Received NDEA award from Bachelor's institution	21.2	18.9
Received award from another institution	78.8	81.1
Total %	100.0	100.0
(N)	(1014)	(1036)
D. Institutional Changes After Receipt of NDEA		
None	86.5	85.6
Changed to another institution after completing tenure	13.5	14.4
Total %	100.0	100.0
(N)	(1035)	(1052)

TABLE II-2

SEX, RACE, AND PREVIOUS GRADUATE TRAINING
OF NDEA RECIPIENTS AND COMPARISON GROUP
(In percentages)

Characteristic	1960-61 NDEA	1961-62 NDEA	Comparison Group
A. Sex			
Men	86.5	88.2	83.4
Women	13.5	11.8	16.6
Total %	100.0	100.0	100.0
(N)	(1039)	(1057)	(451)
B. Race			
White	98.2	99.5	98.6
Black	0.6	0.2	0.5
Other	1.2	0.3	0.9
Total %	100.0	100.0	100.0
(N)	(1018)	(1041)	(441)
C. Extent of Previous Graduate Training			
None	83.9	83.8	60.9
Less than six months	1.5	1.8	1.3
Six months or more but no degree	3.9	3.5	1.8
Received M. A. or equivalent professional degree	10.7	10.8	36.0
Total %	100.0	100.0	100.0
(N)	(1025)	(1045)	(447)

TABLE II-3

STUDY FIELD AND REGIONAL DISTRIBUTION OF NDEA RECIPIENTS AND COMPARISON GROUP
(In percentages)

Study Field and Region	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
A. Study Field[a]									
Education	5.7	7.9	6.0	6.9	5.6	6.7	2.4	2.7	2.4
Humanities	22.8	42.9	25.5	20.5	42.4	23.1	16.0	38.7	19.7
Business and Professions	3.0	0.7	2.7	2.6	-	2.3	0.3	-	0.2
Social Sciences	24.8	25.7	24.9	23.6	24.0	23.6	24.7	21.3	24.2
Psychology	1.4	4.3	1.8	2.5	4.0	2.6	10.1	16.0	11.1
Biological Sciences	9.2	12.1	9.6	11.4	10.4	11.2	14.4	12.0	14.0
Physical Sciences	19.9	5.7	18.0	18.6	10.4	17.6	22.6	9.3	20.4
Engineering	13.1	0.7	11.4	14.0	3.2	12.8	9.6	-	8.0
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(899)	(140)	(1039)	(932)	(125)	(1057)	(376)	(75)	(451)

[a]Categories for study fields are shown in detail in Appendix C.

TABLE II-3--Continued

Study Field and Region	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
B. Geographic Region[b]									
New England	6.6	5.7	6.4	7.6	11.2	8.0	4.3	4.0	4.2
Middle Atlantic	10.3	13.6	10.8	13.0	14.4	13.2	13.8	20.0	14.9
East North Central	15.2	17.8	15.6	15.3	15.2	15.3	10.6	5.3	9.8
West North Central	12.2	11.4	12.1	11.5	10.4	11.4	25.8	22.7	25.3
South Atlantic	16.1	15.0	16.0	16.0	10.4	15.3	10.9	14.7	11.5
East South Central	7.6	6.4	7.4	7.8	9.6	8.0	0.8	-	0.7
West South Central	10.3	10.7	10.4	9.1	7.2	8.9	8.5	6.7	8.2
Mountain	9.7	4.3	9.0	8.4	8.0	8.3	9.6	1.3	8.2
Pacific	11.9	15.0	12.3	11.3	13.6	11.5	15.7	25.3	17.3
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(899)	(140)	(1039)	(932)	(125)	(1057)	(376)	(75)	(451)

[b]Region refers to the geographic location of a respondent's graduate institution. Categories are based on Census regions.

TABLE II-4

PROPORTION OF WOMEN IN EACH STUDY FIELD AND GEOGRAPHIC REGION:[a]
NDEA RECIPIENTS AND COMPARISON GROUP
(In Percentages)

Study Field and Region	NDEA Women			Comparison Group Women
	1960-61	1961-62	Total	
A. Study Field				
Education	17.7	9.8	13.5	[2]
(N)	(62)	(71)	(133)	(11)
Humanities	22.6	21.7	22.2	32.6
(N)	(265)	(244)	(509)	(89)
Business and Professions	3.6	-	1.9	[0]
(N)	(28)	(24)	(52)	(1)
Social Sciences	13.9	12.0	13.0	14.7
(N)	(259)	(250)	(509)	(109)
Psychology	[6]	17.8	23.4	24.0
(N)	(19)	(28)	(47)	(50)
Biological Sciences	17.0	10.9	13.7	14.3
(N)	(100)	(119)	(219)	(63)
Physical Sciences	4.3	7.0	5.6	7.6
(N)	(187)	(186)	(373)	(92)
Engineering	0.8	3.0	2.0	-
(N)	(119)	(135)	(254)	(36)
B. Geographic Regions				
New England	11.9	16.5	14.5	[3]
(N)	(67)	(85)	(152)	(19)
Middle Atlantic	17.0	12.9	14.7	22.4
(N)	(112)	(139)	(251)	(67)
East North Central	15.4	11.7	13.6	9.1
(N)	(162)	(162)	(324)	(44)

[a]Region refers to the geographic location of a respondent's graduate institution.

TABLE II-4--Continued

Study Field and Region	NDEA Women			Comparison Group Women
	1960-61	1961-62	Total	
West North Central	12.7	10.8	11.8	14.9
(N)	(126)	(120)	(246)	(114)
South Atlantic	12.6	8.0	10.4	21.2
(N)	(166)	(162)	(328)	(52)
East South Central	11.7	14.1	13.0	[0]
(N)	(77)	(85)	(162)	(3)
West South Central	13.9	9.6	11.9	13.5
(N)	(108)	(94)	(202)	(37)
Mountain	6.4	11.4	8.8	2.7
(N)	(93)	(88)	(181)	(37)
Pacific	16.4	13.9	15.2	24.4
(N)	(128)	(122)	(250)	(78)

TABLE II-5

AGE AND MARITAL STATUS OF NDEA RECIPIENTS AND COMPARISON GROUP
(In percentages)

Age and Marital Status	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
A. Age at Time of Survey									
20-29 years	0.9	2.9	1.2	9.2	20.0	10.4	0.8	2.7	1.1
30-39 years	89.6	86.4	89.2	83.0	66.4	81.0	83.8	73.3	82.0
40-49 years	8.0	7.9	8.0	6.7	10.4	7.1	12.5	18.7	13.5
50-59 years	1.0	2.1	1.2	0.5	3.2	0.9	2.4	2.7	2.4
60 and over	0.4	0.7	0.5	0.6	-	0.6	0.5	2.7	0.9
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(897)	(140)	(1037)	(927)	(125)	(1052)	(376)	(75)	(451)
Median age	35.0	35.0	35.0	34.4	34.0	34.4	35.4	36.0	35.5
B. Proportion Married in Each Year of Graduate Study									
First year (N)	51.0 (884)	22.9 (140)	47.2 (1024)	53.4 (912)	25.8 (120)	50.2 (1032)	48.0 (369)	36.0 (75)	45.9 (444)
Second year (N)	61.0 (847)	38.6 (132)	58.0 (979)	61.7 (888)	38.5 (109)	59.2 (997)	59.1 (362)	45.6 (68)	57.0 (430)
Third year (N)	67.8 (813)	48.8 (123)	65.3 (936)	68.5 (855)	50.5 (99)	66.7 (954)	67.0 (352)	50.8 (63)	64.6 (415)
Fourth year (N)	72.9 (675)	58.8 (102)	71.0 (777)	72.3 (712)	54.4 (79)	70.5 (791)	72.7 (322)	53.4 (58)	69.7 (380)
Fifth year (N)	75.2 (533)	61.1 (90)	73.2 (623)	74.5 (537)	58.2 (67)	72.7 (604)	73.6 (265)	54.5 (44)	70.9 (309)

TABLE II-5--Continued

Age and Marital Status	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
C. Proportion currently married	85.9	70.4	83.7	84.3	69.0	82.3	85.4	59.1	80.9
(N)	(733)	(125)	(858)	(758)	(113)	(871)	(322)	(66)	(388)

TABLE II-6

RECORD OF MILITARY SERVICE FOR NDEA RECIPIENTS
AND COMPARISON GROUP: MEN ONLY
(In percentages)

Military Record	1960-61 NDEA Men	1961-62 NDEA Men	Comparison Group Men
Never in the armed forces	58.1	63.0	55.9
Served in the armed forces:			
Prior to graduate study	31.8	29.0	32.9
While a graduate student	1.8	2.4	2.9
During an interruption in graduate studies	3.3	2.4	5.1
After graduate school or currently	4.9	3.2	3.2
Total %	100.0	100.0	100.0
(N)	(896)	(927)	(374)

TABLE II-7

FATHER'S OCCUPATION, BY RESPONDENT'S STUDY FIELD: NDEA FELLOWS
(In percentages)

Father's Occupation[a]	Study Fields of Total NDEA Recipients								Total
	Education	Humanities	Business and Professions	Social Sciences	Psychology	Biological Sciences	Physical Sciences	Engineering	
Teacher or educator	6.9	7.7	9.6	5.9	6.5	6.1	7.0	3.6	6.5
Other professional	8.5	13.7	9.6	14.8	15.2	9.0	10.3	13.8	12.5
Proprietor or business official	17.7	22.0	34.7	26.2	19.6	12.3	20.4	17.4	21.2
Farm owner or manager	10.8	4.7	-	6.2	-	24.2	7.5	10.9	8.5
Technician or semi-professional worker	3.8	3.9	3.8	1.6	-	1.9	2.0	2.4	2.5
Salesman or clerical worker	8.5	8.2	3.8	9.4	4.3	9.5	8.4	6.9	8.3
Skilled or semi-skilled operative or service worker	21.5	20.0	21.1	18.4	37.0	22.3	28.2	30.4	23.1
Unskilled laborer or farm worker	3.1	3.5	3.8	3.3	2.2	2.8	3.4	1.6	3.1
Other	19.2	16.3	13.5	14.2	15.2	12.0	12.8	13.0	14.4
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(130)	(490)	(52)	(488)	(46)	(211)	(358)	(247)	(2022)

[a]Refers to time of respondent's college graduation.

TABLE II-8

FATHER'S AND MOTHER'S EDUCATION BY RESPONDENT'S STUDY FIELD: NDEA FELLOWS
(In percentages)

Level of Education	Study Fields of Total NDEA Recipients								Total
	Education	Humanities	Business and Professions	Social Sciences	Psychology	Biological Sciences	Physical Sciences	Engineering	
Father's Education									
Less than high school completion	49.2	32.1	38.5	33.9	40.4	48.4	39.4	45.2	38.6
High school graduate	18.9	21.3	25.0	20.8	25.5	17.8	22.0	21.4	21.0
Some college	13.6	15.3	13.5	14.7	10.6	15.5	13.1	13.1	14.3
College graduate	9.1	14.9	13.5	13.5	4.3	8.7	12.9	10.7	12.4
Postgraduate study	9.1	16.3	9.6	17.1	19.1	9.6	12.6	9.5	13.8
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(132)	(502)	(52)	(504)	(47)	(219)	(373)	(252)	(2081)
Mother's Education									
Less than high school completion	41.2	24.0	30.8	24.0	27.7	34.6	29.8	30.2	28.2
High school graduate	26.0	32.1	30.8	34.9	40.4	32.7	34.0	38.9	33.8
Some college	19.8	23.6	13.5	20.0	14.9	15.2	18.5	15.9	19.3
College graduate	8.4	13.3	21.2	14.1	12.8	11.1	11.3	12.7	12.7
Postgraduate study	4.6	7.1	3.8	6.9	4.3	6.5	6.4	2.4	6.0
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(131)	(505)	(52)	(504)	(47)	(217)	(373)	(252)	(2081)

TABLE II-9

ANNUAL PARENTAL INCOME BY RESPONDENT'S STUDY FIELD: NDEA FELLOWS
(In percentages)

Annual Parental Income at Time of Respondent's College Graduation	Study Fields of NDEA Fellows								Total
	Education	Humanities	Business and Professions	Social Sciences	Psychology	Biological Sciences	Physical Sciences	Engineering	
Less than $5,000	32.8	22.6	18.4	15.7	15.9	24.4	21.8	16.9	20.7
$5,000 - $7,499	26.9	23.9	16.3	22.1	25.0	28.8	23.0	25.8	24.1
$7,500 - $9,999	17.6	20.8	30.6	25.0	22.7	19.0	24.2	25.4	22.9
$10,000 - $14,999	16.8	19.3	16.3	19.7	27.3	21.5	20.8	19.5	19.9
$15,000 - $19,999	5.0	7.2	12.2	8.0	6.8	2.9	6.3	5.9	6.6
$20,000 - $24,999	0.8	3.5	4.1	3.5	-	2.0	0.9	1.7	2.4
$25,000 or more	-	2.6	2.0	6.0	2.3	1.5	3.0	4.7	3.4
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(119)	(456)	(49)	(452)	(44)	(205)	(331)	(236)	(1892)
Median Income	$6,601	$7,921	$8,750	$8,716	$8,500	$7,224	$8,046	$8,208	$8,071

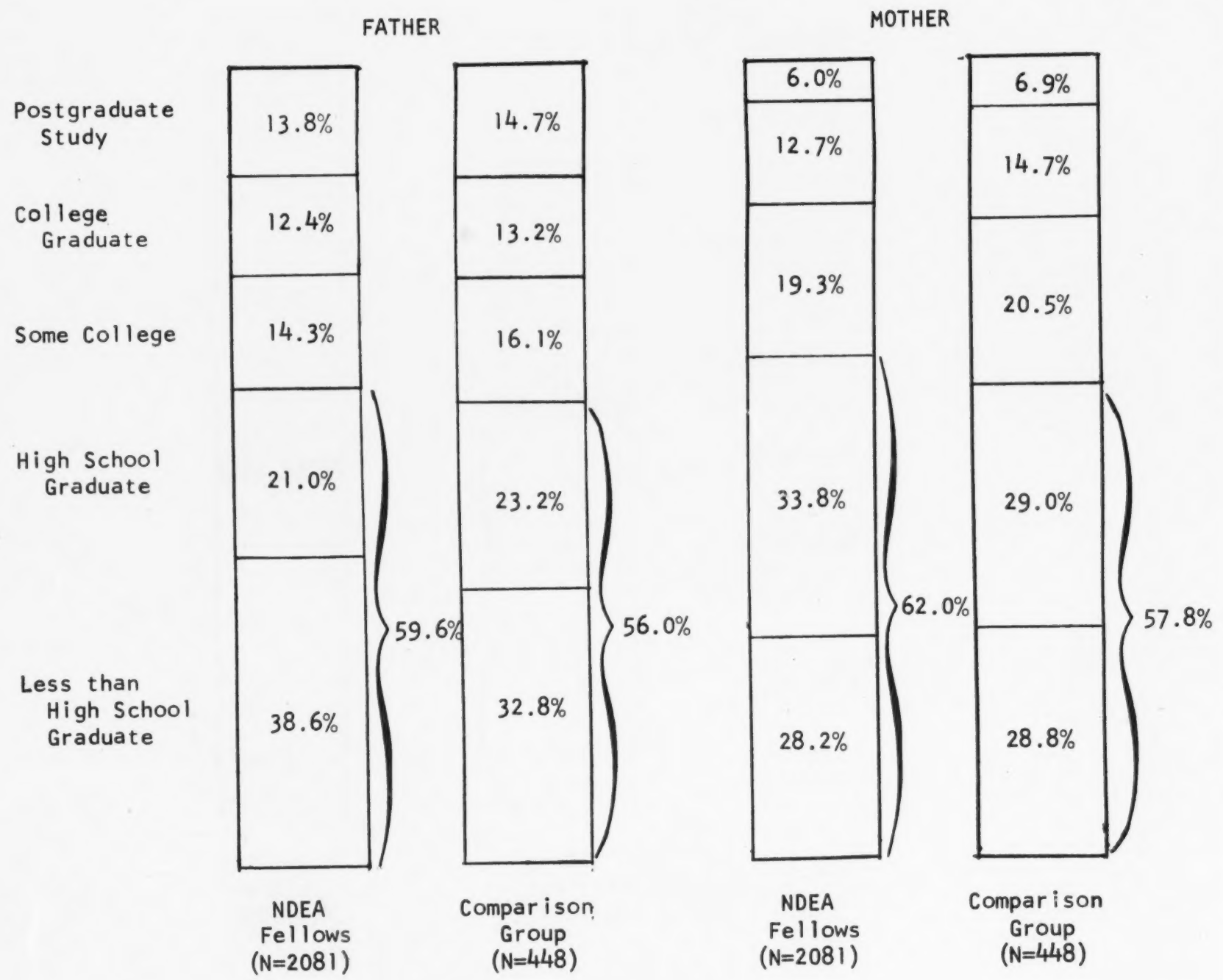

FIGURE II-1

LEVEL OF PARENTS' EDUCATION: NDEA FELLOWS AND COMPARISON GROUP STUDENTS

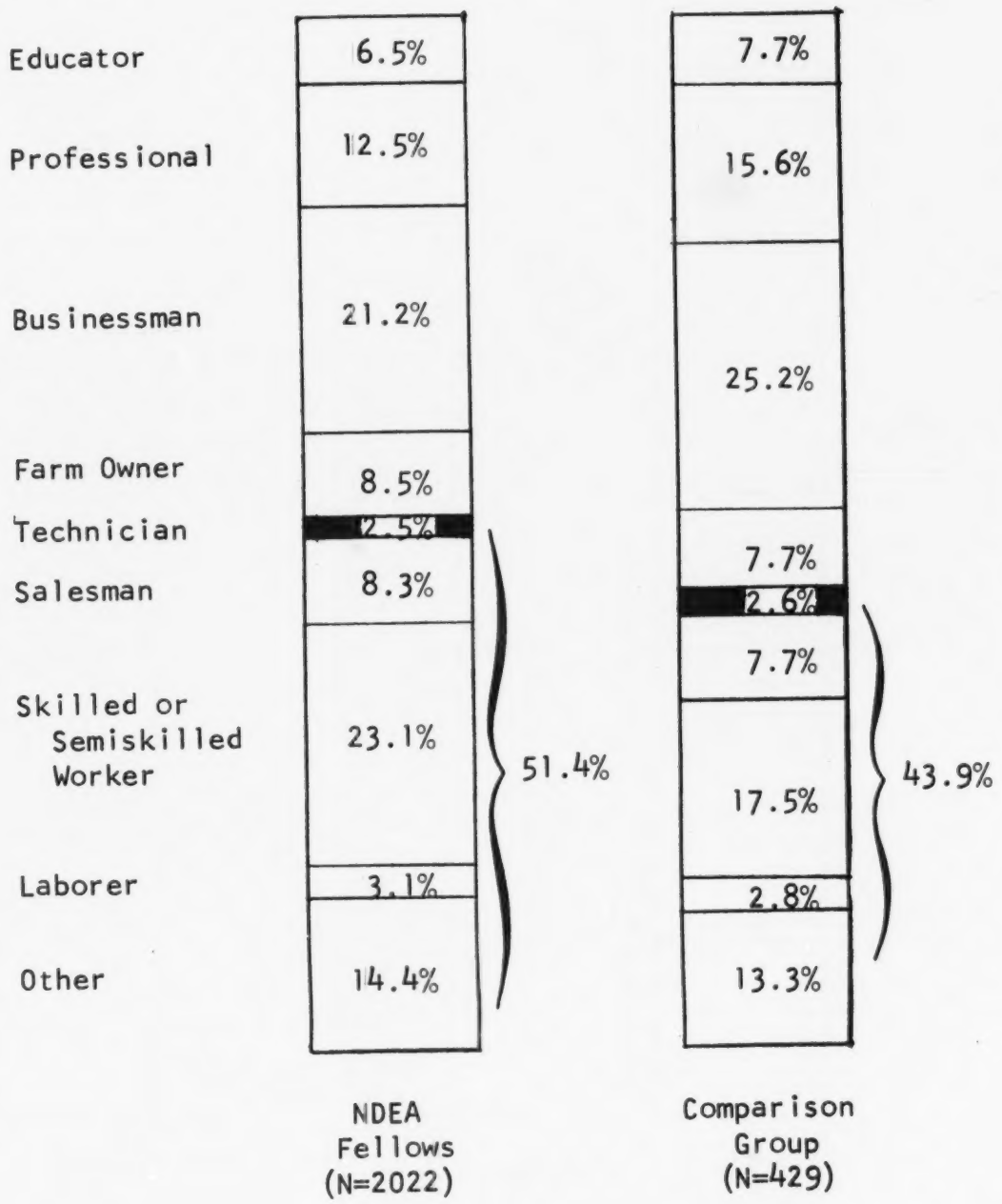

FIGURE II-2

TYPE OF FATHER'S OCCUPATION: NDEA FELLOWS AND COMPARISON GROUP STUDENTS

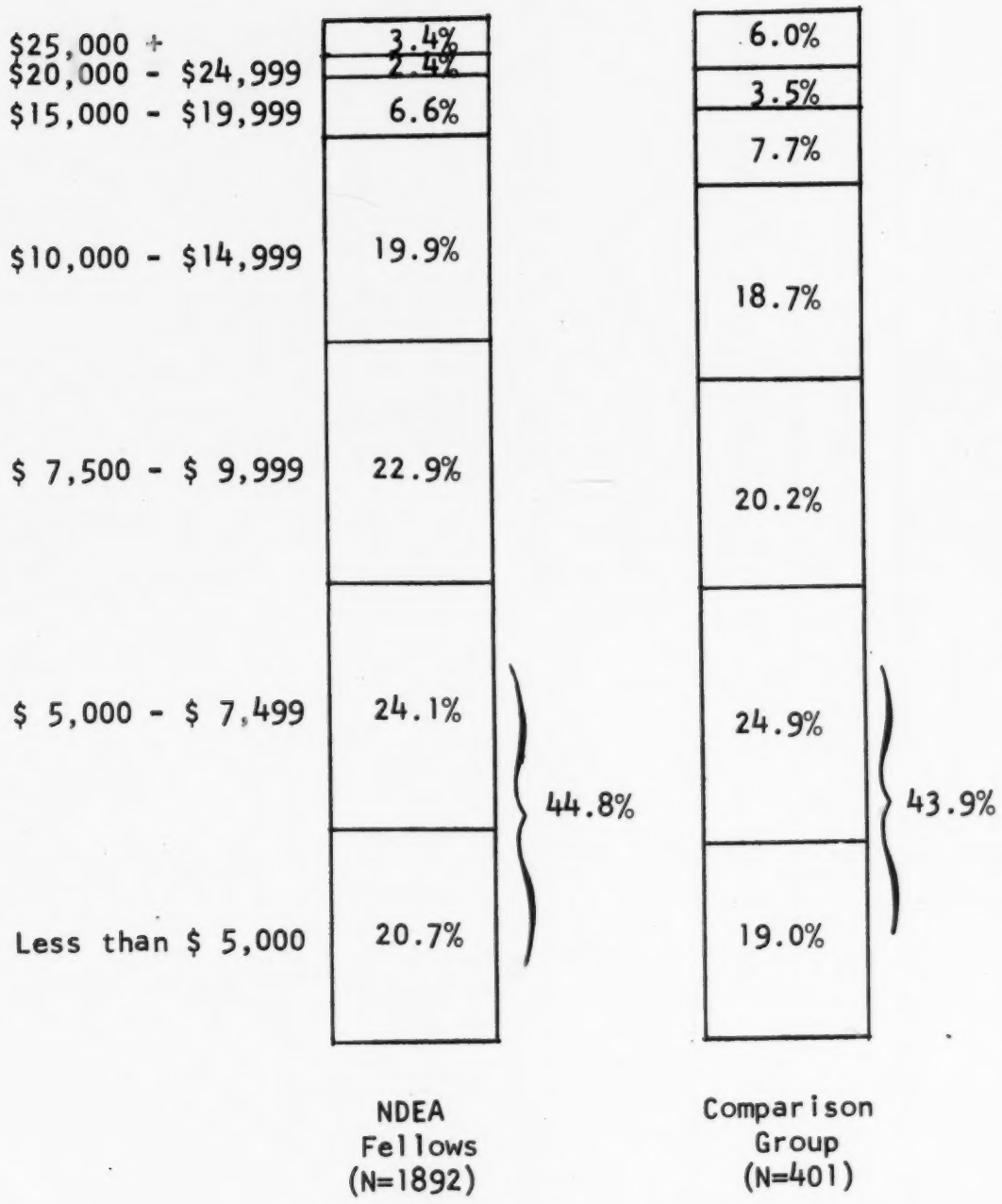

FIGURE II-3

LEVEL OF PARENTS' ANNUAL INCOME AT TIME RESPONDENT RECEIVED THE B. A.: NDEA FELLOWS AND COMPARISON GROUP STUDENTS

TABLE II-10

SIZE OF COMMUNITY OF RESIDENCE AT TIME OF HIGH SCHOOL GRADUATION
AND CURRENTLY: NDEA RECIPIENTS
AND COMPARISON GROUP
(In percentages)

Size of Community[a]	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
A. High School Residence									
A major city or suburb thereof	29.4	36.0	30.3	29.2	42.7	30.8	31.8	39.2	33.0
Other city or suburb thereof	16.4	19.4	16.8	14.0	16.1	14.3	13.6	13.5	13.6
A large town	29.7	28.1	29.4	31.7	28.2	31.3	28.3	32.4	29.0
A small town or rural area	24.5	16.5	23.4	25.0	12.9	23.6	26.2	14.9	24.3
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(897)	(139)	(1036)	(927)	(124)	(1051)	(374)	(74)	(448)

TABLE II-10--Continued

Size of Community[a]	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
B. Current Residence									
A major city or suburb thereof	38.4	43.6	39.1	36.0	48.4	37.5	38.0	41.1	38.5
Other city or suburb thereof	21.7	15.7	20.9	22.9	24.2	23.1	20.2	24.7	20.9
A large town	30.8	32.9	31.1	34.0	20.2	32.3	34.2	26.0	32.9
A small town or rural area	9.1	7.9	8.9	7.0	7.3	7.1	7.5	8.2	7.7
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(890)	(140)	(1030)	(924)	(124)	(1048)	(371)	(73)	(444)

[a]Population sizes defining each category are as follows: major city (250,000 or more); other city (50,000 to 249,999); large town (2,500 to 49,999); small town or rural area (less than 2,500).

TABLE II-11

UNDERGRADUATE GRADE-LETTER AVERAGE AND GRE SCORES FOR NDEA RECIPIENTS AND COMPARISON GROUP
(In percentages)

Undergraduate Average and GRE Scores	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Undergraduate Grade Letter Average									
A and A+	22.4	20.9	22.2	19.5	27.2	20.4	10.6	29.7	13.8
A-	27.5	36.7	28.8	28.1	32.8	28.7	16.8	31.1	19.2
B+	30.4	28.0	30.1	29.0	29.6	29.1	26.1	17.6	24.7
B	9.1	10.1	9.2	11.6	7.2	11.1	16.6	5.4	14.7
B- or less	10.6	4.3	9.8	11.7	3.2	10.7	29.9	16.2	27.6
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(894)	(139)	(1033)	(921)	(125)	(1046)	(368)	(74)	(442)
Median	B+	A-	A-	B+	A-	B+	B+	A-	B+
GRE Scores[a]									
Verbal:									
800 or over	17.9	17.8	17.9	13.9	16.7	14.2	17.6	[7]	21.9
700 - 799	26.9	32.1	27.5	26.3	47.2	28.8	23.1	[3]	22.9
600 - 699	26.4	32.1	27.1	33.8	25.0	32.8	36.3	[1]	32.4
500 - 599	21.7	14.3	20.8	19.5	8.3	18.2	13.2	[3]	14.3
499 or less	7.1	3.6	6.7	6.4	2.8	6.0	9.9	-	8.6
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0
(N)	(212)	(28)	(240)	(266)	(36)	(302)	(91)	(14)	(105)

[a]Medians for GRE scores are not presented since less than one-fourth of the respondents reported GRE scores.

TABLE II-11--Continued

Undergraduate Average and GRE Scores	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Quantitative:									
800 or over	21.1	11.5	20.0	23.7	9.7	22.2	26.4	[1]	23.8
700 - 799	25.8	-	23.0	27.1	19.4	26.3	18.7	[2]	18.1
600 - 699	28.2	34.6	28.9	24.8	16.1	23.9	35.2	[4]	34.3
500 - 599	16.7	23.1	17.4	16.2	25.8	17.2	11.0	[2]	11.4
499 or less	8.1	30.8	10.6	8.3	29.0	10.4	8.8	[5]	12.4
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	-	100.0
(N)	(209)	(26)	(235)	(266)	(31)	(297)	(91)	(14)	(105)

TABLE II-12

PROPORTION OF RESPONDENTS WHO REPORTED RECEIVING INCOME FROM SELECTED SOURCES DURING FIRST FIVE YEARS OF DOCTORAL STUDY BY DOCTORAL STATUS AND SEX

Years and Source of Financial Aid		NDEA					Comparison Group				
		Ph. D.		No Ph. D.		Total	Ph. D.		No Ph. D.		Total
		Men	Women	Men	Women		Men	Women	Men	Women	
Free Money[a]											
First year	%	91.2	94.3	93.7	94.4	92.4	39.3	42.9	35.8	40.6	38.9
	(N)	(1097)	(87)	(607)	(143)	(1934)	(262)	(35)	(95)	(32)	(424)
Second year	%	95.6	94.3	93.9	92.7	94.8	42.3	48.6	29.2	23.1	38.8
	(N)	(1093)	(87)	(555)	(123)	(1858)	(260)	(35)	(89)	(26)	(410)
Third year	%	96.2	92.9	90.9	90.4	94.3	45.6	47.1	32.5	25.0	42.0
	(N)	(1082)	(85)	(472)	(104)	(1743)	(250)	(34)	(77)	(20)	(381)
Fourth year	%	55.4	49.3	41.4	39.3	51.0	45.6	40.6	33.9	[4]	42.1
	(N)	(846)	(67)	(304)	(61)	(1278)	(226)	(32)	(62)	(15)	(335)
Fifth year	%	39.2	36.7	29.5	23.1	35.7	41.3	27.3	34.0	[1]	37.5
	(N)	(508)	(49)	(210)	(39)	(806)	(167)	(22)	(50)	(9)	(248)

[a]Grant or fellowship that does not require any work on the part of the student.

TABLE II-12--Continued

Years and Source of Financial Aid		NDEA					Comparison Group				
		Ph. D.		No Ph. D.		Total	Ph. D.		No Ph. D.		Total
		Men	Women	Men	Women		Men	Women	Men	Women	
Earnings											
First year	%	36.9	24.1	35.9	17.5	34.6	69.8	45.7	70.5	56.2	67.0
	(N)	(1097)	(87)	(607)	(143)	(1934)	(262)	(35)	(95)	(32)	(424)
Second year	%	41.4	29.9	41.1	20.3	39.3	76.9	60.0	79.8	73.1	75.9
	(N)	(1093)	(87)	(555)	(123)	(1858)	(260)	(35)	(89)	(26)	(410)
Third year	%	41.0	21.2	42.2	21.2	39.2	69.2	58.8	81.8	65.0	70.6
	(N)	(1082)	(85)	(472)	(104)	(1743)	(250)	(34)	(77)	(20)	(381)
Fourth year	%	59.7	53.7	64.8	44.3	59.9	66.8	62.5	75.8	[10]	68.1
	(N)	(846)	(67)	(304)	(61)	(1278)	(226)	(32)	(62)	(15)	(335)
Fifth year	%	65.0	57.1	72.4	38.5	65.1	61.1	63.6	68.0	[5]	62.5
	(N)	(508)	(49)	(210)	(39)	(806)	(167)	(22)	(50)	(9)	(248)
Other Support											
First year	%	47.4	36.8	42.0	32.2	44.1	56.5	62.9	54.7	46.9	55.9
	(N)	(1097)	(87)	(607)	(143)	(1934)	(262)	(35)	(95)	(32)	(424)
Second year	%	50.1	36.8	44.3	36.6	46.9	57.7	62.9	57.3	42.3	57.1
	(N)	(1093)	(87)	(555)	(123)	(1858)	(260)	(35)	(89)	(26)	(410)
Third year	%	51.8	43.5	48.3	37.5	49.6	57.6	55.9	55.8	40.0	56.2
	(N)	(1082)	(85)	(472)	(104)	(1743)	(250)	(34)	(77)	(20)	(381)
Fourth year	%	54.7	52.2	50.7	42.6	53.1	54.9	53.1	45.2	[6]	52.2
	(N)	(846)	(67)	(304)	(61)	(1278)	(226)	(32)	(62)	(15)	(335)
Fifth year	%	48.4	53.1	48.1	43.6	48.4	49.7	68.2	50.0	[3]	50.8
	(N)	(508)	(49)	(210)	(39)	(806)	(167)	(22)	(50)	(9)	(248)

III. RATES OF DOCTORAL COMPLETION AND DURATION OF PREDOCTORAL STUDIES

Various studies have indicated that rates of completion among doctoral students are generally not high. In a recent study of higher education, Folger, Astin, and Bayer[1] examined national statistics and found that no more than one-fourth to one-third of the full-time entrants to graduate schools completed the doctorate within seven years. In a study of Woodrow Wilson Fellowship winners of 1958-1960, Mooney found that, even among this highly select group, fewer than half had completed the doctorate six to eight years after they entered graduate training.[2] In comparison with these persons, both the NDEA Fellows and the students in the comparison group had done very well in that 61.8 per cent of the 1960-61 NDEA group, 59.5 per cent of the 1961-62 NDEA group, and 68.7 per cent of the comparison group had earned the doctorate at the time of the study--within a time span of eight to nine years.

It should again be pointed out here that findings for the comparison group must be cautiously treated; the crude comparison made here for the convenience of the reader results in a probable underestimate of the accomplishments of the NDEA Fellows. First, the completion rates cited above are based on the total NDEA group, including students who had resigned from the program--most of whom also dropped out of school. When the comparisons are limited to NDEA Fellows who had completed

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[1] Folger, Astin, Bayer, op. cit., pp. 185ff.

[2] Joseph Mooney, "Attrition Among Ph. D. Candidates: An Analysis of a Cohort of Recent Woodrow Wilson Fellows," Department of Economics, Princeton University, Unpublished Paper, 1967.

fellowship tenure, NDEA doctoral completion rates are higher than those for the students in the comparison group: 70.6 percent versus 68.7 percent. In addition, the completion rate of 67.8 percent for the 1961-62 NDEA group compares very favorably with the comparison group students who had entered graduate school at least a year earlier as explained in Chapter I. Second, nearly one-fifth of the total NDEA group--a slightly higher proportion than in the comparison group--had completed most of the requirements for the doctorate and were expecting to get the degree within a year (see Chapter V). There is no doubt that the above percentages understate the proportion of NDEA Fellows who will eventually obtain the doctorate.

Before discussing the factors which appear to be related to these rates of attainment of the doctorate and to duration of graduate study among our respondents, it is appropriate to present data relating to certain aspects of predoctoral study which tended to facilitate or impede the progress of our respondents: full-time as opposed to part-time predoctoral schedules, attitudes toward doctoral programs, and types of difficulties encountered during study for the doctorate.

Aspects of Predoctoral Study

A commitment to full-time graduate study is one of the conditions for receiving an NDEA Fellowship. Thus, it is not surprising that about 80 per cent of the NDEA Fellows reported studying full-time and continuously during the academic year while working on their doctoral coursework (Table III-1). Just over half of those in the comparison group reported this level of concentration on coursework[3] and of a sample

[3]The work schedule on the dissertation was more similar for the NDEA and comparison group students than the work schedule on general coursework requirements. Here, again, is support for our suspicion that

of students in graduate school from the period 1960-65 studied by Folger, Astin and Bayer,[4] only 40 per cent reported full-time graduate enrollment. Thus, it appears the NDEA Fellowship program made possible a more intensive educational experience for these grantees than would otherwise have been expected.

The proportions of respondents who were able to complete specific requirements for the doctorate within two and three years after starting graduate work are presented in Table III-2. Within the period of concentrated study that the Fellowships made possible, nearly three-fifths of the NDEA Fellows in both academic cohorts were able to finish all doctoral coursework, and over half to complete the general qualifying exams and language requirements, within three years;[5] 44.4 per cent of the comparison group finished their coursework and proportionately fewer completed additional requirements.

Fewer than half of the NDEA Fellows managed to have their dissertation topics approved before NDEA support ended, and much smaller

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the comparison group respondents consisted mainly of a hard-core doctoral group who picked up departmental support as they progressively proved their intention and dedication to obtain the doctorate.

In the comparison group, more women than men had worked full-time on the dissertation, while the reverse was true for the NDEA students; among the latter, men were twice as likely as women to have worked full-time, without interruptions, on their dissertations. However, the total number of women involved in the comparison group is too small to allow for firm conclusions. Generally, the trend is for the women to have more part-time work than men (see Sharp, 1970, op. cit., p. 32).

[4]Folger, Astin and Bayer, op. cit., p. 183.

[5]The discrepancy between the roughly 80 per cent who report full-time, continuous study and the nearly 60 per cent who completed their coursework within three years is consistent with the fact that the group of NDEA Fellows includes the resignees, who make up 18 per cent of the total number.

proportions were able to complete the remaining doctoral requirements (collecting data, submitting draft of the dissertation) within the three years of the award. In effect, the NDEA award allowed only a small proportion of the NDEA recipients (10 to 20 per cent) to work full-time on the dissertation. Thus it is not surprising that the factor cited most frequently as causing difficulty during predoctoral study, one mentioned by over 70 per cent of both men and women Fellows and comparison group members, was having to write their dissertations off-campus while employed full-time. Since full-time dissertation work is related significantly to doctoral completion, these data suggest that the extension of NDEA support for another year of full-time work on the dissertation to those Fellows who have successfully completed all other requirements during the tenure of their Fellowships might considerably reduce time and completion losses due to part-time work on the dissertation and result in higher rates of doctorate attainment among grantees.

Despite the mention of such problems, both the NDEA Fellows and members of the comparison group expressed very favorable opinions concerning their doctoral programs. First, the majority of these students were convinced that the doctoral degree was either "absolutely necessary" or "very important" for success in their chosen careers (Table III-3). Second, students in both groups generally rated their doctoral programs and their graduate departments rather highly. For instance, the amount of emphasis placed by their graduate departments on such doctoral requirements as coursework in minor fields, and in language or tool requirements was consistently rated as the "right amount" by over half of the NDEA Fellows and comparison group students,

while about three-fourths of the students in both groups thought that just the right amount of emphasis was placed on coursework in their major field and on the dissertation (Table III-4).

Similarly, over half (and in some cases over two-thirds) of the students both in the NDEA group and in the comparison group rated "very adequate" or "adequate" the following aspects of their doctoral program: the opportunity for study-related experience prior to the dissertation, freedom to adjust the doctoral program to individual academic interests, accessibility of faculty for individual consultation, assistance and direction from thesis advisors, and cooperation from dissertation committee (Table III-5).[6]

Even though a majority of all respondents reported satisfaction with the doctoral programs of their respective departments and with the assistance and cooperation they received, problems did arise. Respondents frequently complained that it had been very difficult to write the dissertation off-campus while employed elsewhere, that they hadn't had enough money, that they had had trouble with poor courses, with foreign language requirements, and with their dissertations, that they had lost interest in their studies, that family obligations interfered, etc. In Table III-6 are presented the percentages of male and female respondents in both groups who indicated that certain factors caused either "considerable" or "some" difficulty during their doctoral studies.

Assuming that there are no sex differences in respondent behavior regarding this question, it is interesting to note that, with the

[6]Both the satisfaction and the adequacy percentages for the NDEA group are higher than the percentages cited by Berelson (Bernard Berelson, Graduate Education in the United States, New York: McGraw-Hill, 1960, pp. 203ff.), although the questions are not directly comparable.

exception of two areas, more women than men seem to have experienced difficulty during predoctoral studies. The two exceptions are, first, problems of a financial nature which appear to trouble men more than women, and second, foreign language or tool requirements which seem to be more easily fulfilled by women than by men. The higher level of difficulty experienced by the women is, of course, in line with NDEA outcome data which show that even among this group of select and fully supported graduate students, proportionately fewer women than men had earned the doctorate. Obviously, the obstacles enumerated in Table III-6 do not exhaust and probably do not even come close to identifying all the factors which make the period of predoctoral study not only more problematic and difficult for women, but also less successful.[7]

Factors Related to Doctoral Completion

It was mentioned earlier that the rates of attrition during doctoral study among our respondents, both Fellows and comparison group members, were lower than among graduate students in general. They were even lower among those Fellows who completed Fellowship tenure. Figure III-1 shows the differences in doctoral attainment between the NDEA recipients who completed Fellowship tenure and those who resigned from the program. While 70.6 per cent of the 1960-61 NDEA Fellows and 67.8 per cent of the 1961-62 NDEA Fellows who completed tenure also obtained

[7]For a discussion of the sociological and psychological factors affecting women's self-concepts, professional training, and ocupational behavior, see Cynthia Fuchs Epstein, Woman's Place: Options nd Limits in Professional Careers. Berkeley: University of California 1970. Epstein shows that although the American value system "fails o provide cultural support for women who would become professionals," i "also possesses flexible characteristics which permit departure fro dominant images and attitudes" (p. 49). However, it is clear from herdiscussion that differences in values, in socialization, and in expectatons subtly handicap women graduate students so that their attrition rate are higher than those for men (pp. 50ff.).

the doctorate, only about 21 per cent of the Fellows who resigned from the program obtained the doctorate. Moreover, while only 12 per cent of the group which completed tenure had decided to discontinue their doctoral studies, about 60 per cent of the resigned Fellows had dropped out of graduate school. Section VI contains a brief discussion regarding the resigned Fellows and their reasons for dropping out of the program. It is clear that completing Fellowship tenure was significantly related to doctoral completion.

Another significant factor was sex: 64 per cent of the total NDEA male awardees had completed the doctorate as against only 37.7 per cent of the female awardees. There were also the differences in doctoral completion rates among study fields that might have been expected. Generally, fewer than half of the Fellows in the Humanities, and slightly over half of the Fellows in the Social Sciences had earned the doctorate, while over two-thirds of the Fellows in the Biological Sciences, Physical Sciences, and two-thirds of the Fellows in Engineering had completed the doctorate (Table III-7). The completion rates of NDEA students in Education were similar to those in the Biological Sciences; i.e., over three-fourths of the students in both fields had completed the doctorate. Due to the high success rate of the students in Education (and also in Psychology, although the number of cases is small), the study field differences in doctoral completion rates when grouped in terms of Natural Sciences (Biological and Physical Sciences, and Engineering) vs. Social Sciences (Education, Business and Professions, Social Sciences, and Psychology) did not reach the .05 level of significance, although substantially more students in the Natural Sciences

(69.9%) than in the Social Scineces (54.4%) had obtained the doctorate. Similar differences tied to sex and study fields had been found in the first phase of the study.

Since in the second phase of the study, we had access to more demographic and academic background data, it was decided to use a stepwise multiple regression analysis to determine the relative importance of each factor in predicting successful completion of doctoral studies. This kind of analysis is useful in that it allows simultaneous control of a number of variables when examining the relation of any one variable to the dependent variable.[8] About one hundred variables were constructed from the data made available by the survey questionnaires.[9] Some of these variables were "dummy" variables, that is, they were constructed by dichotomizing such factors as sex, geographic regions of graduate institutions, study fields, father's education, occupation, etc. Some of the variables were scale or "continuous" variables, constructed from responses to questions such as the degree of satisfaction felt with graduate departments, perceived adequacy of doctoral programs, the total degree of difficulty experienced during predoctoral studies, SES index, etc. In the analysis of the factors contributing to doctoral completion, postdoctoral information (e.g., employment, current income) was excluded from the analysis.[10] The computer was programmed to delete any variable which did not enter the regression equation with an F value above 1.99.

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[8]See Appendix B for a discussion of the reasons for using this technique.

[9]See Appendix B for a description and scoring of the variables utilized in the regression analyses.

[10]The only predoctoral information not included in the regression analyses was the information regarding the sources and quantity of financial support during predoctoral studies. Since the regression analysis

The results of this analysis indicated that nearly 60 per cent of the variance in NDEA doctoral completion was explained by 30 predictors, entering the regression equation with an F value above the probability level of .05. However, only those variables which explained at least one per cent of the variance in doctoral completion are presented in Table III-8.[11] Although this is a rather arbitrary decision, we feel that the other variables reflect spurious relations which result from the large number of cases involved in the regression analysis. The 15 variables, each of which explained at least one per cent of the variance, are included in the table to give a sense of their relative importance as predictors of doctoral completion. A case for a more conservative approach could easily be made by just considering the three major variables (the importance attributed to the doctoral degree, full-time

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does not tolerate missing cases, it was decided that assigning a median value to the missing cases would provide invalid comparisons in this case insofar as there were too many inconsistencies in responses. A number of chi squares were run with proportions presented in Table III-12 to see whether or not there was any relationship between types of financial aid received and doctoral completion. As mentioned earlier, there is an indication that more of the doctorates than nondoctorates received "free-money" (i.e., grant or fellowship that does not require any work on the part of the student) after the third year of predoctoral studies. This relationship is significant only for men: 55.4 per cent of the NDEA doctorates as against 41.4 per cent of nondoctorates during the fourth year, and 39.2 per cent of the NDEA doctorates as against 29.5 per cent of nondoctorates in the fifth year (chi squares are 17.6, $p < .001$, and 6.37, $p < .02$, respectively). Although this finding raises the possibility that additional support provided to "promising" students after the third year might have helped completion of the doctorate, it is difficult to determine any causal relationship.

[11] All of the data presented in multiple regression tables are derived from summary tables which take into account all variables entering the regression equation rather than the effects of only those significant variables discussed in the text.

dissertation schedule, and score on the Difficulty Scale)[12] which together explained approximately 40 per cent of the variance in doctoral completion.

The first factor which entered the regression equation, explaining nearly one-fourth of the variance in doctoral completion, was what appears to be a "motivational" factor. Fellows who stated that the doctoral degree was crucial to their long range career goals were more likely than others to have completed the doctorate. This finding seems to agree with Wilson[13] who found that clarity of goals at the beginning of graduate study is related to doctoral completion. However, since the majority of our respondents who attributed high importance to the Ph.D. had become college teachers, the question arises as to whether this attitude is a motivational factor contributing to doctoral completion or is a retrospective evaluation, reflecting the reality of their current employment.

Furthermore, all the Fellows can be presumed to have initially placed a high value on the doctorate since interest in an academic career was one condition for receiving an NDEA Fellowship.

However, there are indications that those grantees who attributed importance to the doctoral degree in terms of future career success

[12]The Difficulty Scale was constructed by totalling the weighted responses given to 17 subquestions of Question No. 9 which asks the respondent to indicate (on a 3-point scale) the degree of difficulty experienced with various aspects of predoctoral studies: e.g., financial situation, difficulties with the dissertation, with poor courses, with thesis advisors, with loss of interest. The answers to each subquestion were also dichotomized and used in the regression analyses as "dummy" variables.

[13]Kenneth M. Wilson, Of Time and the Doctorate, SREB Research Monograph No. 9, Atlanta, Georgia, 1965, p. 145.

were an unusually able group, highly committed to their professional field, who had sailed smoothly through graduate school. A cursory examination of the zero-order correlations between doctoral importance and other variables reveals that these respondents were less likely than others to have lost interest in predoctoral studies, to have changed majors, or to have had difficulty with coursework, with exams, with foreign language requirements, and with faculty members.

The second factor which explained a large portion of the variance in doctoral completion was that of working full-time on the dissertation. Full-time coursework entered the regression equation with an F value above the .05 level but since it failed to explain at least one per cent of the variance, it is not included in Table III-8. The strength with which full-time dissertation work is related to doctoral completion is perhaps another indicator of the desirability of providing doctoral students with financial support during the later stages of their predoctoral studies in addition to the three years allotted by the NDEA program.

Although a full-time dissertation schedule and viewing the doctoral degree as important for career success were both significantly related to doctoral completion, their relative importance in the regression equation was tempered by the Difficulty Scale which had the largest Beta weight and which correlated negatively with doctoral completion. The intercorrelations between the Difficulty Scale and other variables

are given in Table III-8 and in Table A-6 in Appendix A. It is clear that with the exception of the "dummied" factors indicating areas of specific difficulty (which are part of the Difficulty Scale) and the

Adequacy Scale (i.e., the more difficulty with predoctoral studies, the less adequate the doctoral program), the Difficulty Scale had very low intercorrelations with other variables, hence its effect on doctoral completion was more or less straightforward and did not overlap the effect of other variables. Students who had experienced considerable difficulty throughout most phases of their predoctoral studies were less likely than others to complete the doctorate. On the other hand, after controlling for the effect of the Difficulty Scale, it was found that experiencing difficulty only with specific aspects of the doctoral program (such as difficulty with thesis committee members, or with the dissertation) correlated positively with doctoral completion.[14]

Of various fields of study, only the Social Sciences[15] emerged as an important predictor, explaining about 5 per cent of the variance in doctoral completion. As discussed earlier, students in the Social Sciences were less likely than others, except those in the Humanities, to attain the doctoral degree.

Enrollment in a doctoral field which was similar to the undergraduate major (field continuity) also contributed significantly to doctoral completion. It is possible that this finding, indicating a

[14]This finding is not easy to interpret but perhaps reflects the time during graduate study when specific difficulties are apt to occur. The individual zero-order correlations between doctoral completion and "dummied" difficulty variables are all negative; they become positive only after controlling the effect of the Difficulty Scale. It appears then that certain of the difficulties experienced during predoctoral studies do discourage or prevent students from receiving the doctorate. However, once the student advances to a level where his difficulties are with the dissertation committee members or the dissertation itself, a barrier no longer exists to the attainment of the doctorate. These findings may also reflect the tendency among recipients of doctorates not to minimize the difficulties encountered during predoctoral studies.

[15]In the regression analyses, Biological and Physical Sciences and Engineering were grouped together as Natural Sciences, while the Social Sciences included only Psychology and the Social Sciences. Education, Business and Professions, and the Humanities were treated separately.

continuation of interest in a study field from the undergraduate level through graduate school, may reflect an early professional commitment.[16] Further, students who study the same area in graduate school as they did as undergraduates might well be better prepared for graduate work than others and would, consequently, be expected to have higher success rates.[17]

Field continuity was also found to vary between areas of study. Table A-6 in Appendix A shows that relatively fewer students in the Social Sciences than in the Natural Sciences had undergraduate majors in their area of predoctoral study. (The zero-order correlation between field continuity and the Social Sciences is -.38 and for the Natural Sciences, +.37.) The difficulty and slowness with which the students in the Social Sciences complete their doctoral degree, then, might not only be a function of certain "delaying" factors intrinsic to Social Science departments, but also due to the fact that fewer of the Social Science students than Natural Science students appear to possess the same degree of commitment, interest, and undergraduate preparation. In fact, substantially fewer students in the Natural Sciences than in the Social Sciences report losing interest in predoctoral studies. (Zero-order correlations between losing interest and the Natural Sciences is -.14 while it is +.17 with the Social Sciences.)

As is to be expected, length of graduate training was directly related to doctoral completion. However, there was an indication that Fellows who had attended graduate school prior to receiving an NDEA

[16]See Sharp, op. cit., pp. 6ff. for a discussion of the effect of undergraduate specialization on graduate enrollment and performance.

[17]Folger, Astin, and Bayer, op. cit., p. 235, report that when a student changes major fields between undergraduate to graduate study, the length of his graduate training increases. Similarly, Wilson, op. cit., p. 145, has reported that early development of interest in the doctoral field was related to the success of doctoral studies in his sample of Southern doctoral recipients.

Fellowship were less likely to complete the doctorate than students who had started the Fellowship program as first-year graduate students.[18] NDEA Fellows who had already earned a master's degree (or an equivalent professional degree) were also less likely to complete the doctorate than those without a master's degree. The zero-order correlations presented in Appendix A indicate that students with master's degrees tended to have pre-NDEA graduate training, were more likely to be in Education or in the Social Sciences, tended to lose interest in predoctoral studies and considered the doctoral degree as not important for career success. They tended to drop out of the program without completing Fellowship tenure, and those who did complete the doctorate took a longer time than did other doctoral recipients without a master's degree.[19]

As discussed earlier, tenure completion was directly related to doctoral completion. Moreover, leaving the institution which had granted the NDEA Fellowship, even after completing Fellowship tenure, was negatively related to doctoral completion.

The importance of sex differences, which were found to be significant in a two-by-two chi square analysis, was partially reduced in the multivariate analysis due to the intercorrelations of this variable with other factors. For instance, more women than men awardees were in the

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[18]The factor indicating pre-NDEA graduate training entered the regression equation with an F value above the .05 level but is excluded from the text table because it explained less than one per cent of the variance in doctoral completion. Its relatively weak relation with doctoral completion is probably due to its high positive intercorrelations with master's degree and negative intercorrelation with tenure completion, which are both relatively strong contributors to doctoral completion: master's degree, negatively; tenure completion, positively.

[19]Folger, Astin, and Bayer, op. cit., pp. 235ff., report that bypassing the master's degree tends to shorten the duration of doctoral study.

Social Sciences and had changed majors between undergraduate and graduate schools; fewer women than men awardees were working on their dissertations full-time, attributed importance to the doctoral degree for career success, and completed Fellowship tenure. However, even after controlling for these differences, women still were less likely than men to obtain the doctorate.[20]

No background variables other than sex were found to be related to doctoral completion. None of the socioeconomic factors were significant predictors of doctoral completion and of the two measures of undergraduate academic ability included in the survey questionnaires, the GRE scores could not be used because only one-fourth of the respondents provided answers. And, although the regression analysis indicated a positive correlation between doctoral completion and undergraduate grade letter average, the relationship was not particularly strong. There was also an indication that those who started the doctoral program as married persons (or who got married during the first year of the program) were more likely than others to complete their degrees, particularly when they were compared with those who married during the third year of the program. In addition, having an NDEA award for only one year appeared to correlate negatively with doctoral completion.

In summary, the period of predoctoral study appears to have been one of difficulties and frustrations for most of our respondents. Nevertheless, well over half had received the doctorate at the time of our survey and roughly a fifth were still hoping to attain it. And, the NDEA support which enabled many of the students to work full-time

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[20] See the zero-order correlations in Appendix A for relationships between sex and other factors.

on most of their doctoral requirements clearly contributed to the completion of their doctorates. A belief that the doctorate is vital to their long range career success was more prevalent among doctoral recipients than among other respondents. In addition, having an undergraduate major similar to the doctoral field, completing Fellowship tenure, not changing institutions while in graduate school, and not having previously earned a master's degree were all related to doctoral completion among these persons. Men awardees were more likely to receive the doctorate than women, while students in the Social Sciences were less likely than respondents in other disciplines to complete the doctorate. Other factors found to be detrimental to doctoral completion, to a lesser degree, were graduate school experience prior to the NDEA Fellowship, a low undergraduate grade letter average, and being single at the start of the doctoral program or getting married during the third year of the program.

A prime candidate for the doctorate, our findings seem to indicate, is a newly-entering male graduate student, married and in a doctoral field which matches his undergraduate major, who is supported for a minimum of three years. If the typical length of time required for degree completion in his field is relatively short, as in the Natural Sciences, so that he can spend the third year of the award in working full-time on his dissertation, then his chances of doctoral completion are even higher. Finally, this low-risk graduate student would possess clear cut goals which depend upon acquiring a doctorate; again, one strong indicator of high motivation to attain this degree appears to be field continuation between undergraduate and graduate school.

Factors Contributing to the Duration of Doctoral Completion

The length of time required to attain the doctorate has long since emerged as one of the major issues of concern in graduate education.[21] Two of the most often used measures of this period are the time elapsed between first entry into graduate school and the date of the doctorate (Entry and Ph.D. time lapse), and that between the baccalaureate and the doctorate (B.A. and Ph.D. time lapse).[22] Wilson reports that in his study of Southern doctoral recipients, the mean number of years between B.A. and Ph.D. was 9.2 and between Entry and Ph.D., 7.6 with the highest number of mean years among the doctoral recipients in the Humanities, followed by those in the Social Sciences; the fewest mean years for doctorates were found among those majoring in the Physical Sciences, including Engineering.[23] According to the Doctoral Files of the National Academy of Sciences, the time that elapses between graduate school entry and doctoral completion averages about eight and one-half years for all fields combined.[24]

Although there is concern among educators regarding the length of time involved in attaining the doctorate, not all would agree that

[21]For a discussion of the duration of the doctorate see Wilson, op. cit.; Lindsey R. Harmon and Herbert Soldz, Doctorate Production in United States Universities, 1920-62, National Academy of Sciences, National Research Council, Publication No. 1142, Washington, D. C., 1963; Folger, Astin, and Bayer, op. cit.; and Berelson, op. cit., pp. 150ff.

[22]See Wilson, op. cit., pp. 20ff. for a discussion of different methods of measuring the duration of doctoral completion.

[23]Ibid., pp. 19ff.

[24]Doctoral Files of the National Academy of Sciences, National Research Council, Washington, D. C.

this period can be shortened without significantly reducing the quality of the degree. Table III-9 presents the reactions of our respondents to a question of this sort. Although slightly larger proportions of the students in the slow-degree fields such as the Humanities and the Social Sciences agreed that predoctoral study could be shortened, more than 60 per cent of all respondents, both in the NDEA group and in the comparison group, rejected the idea that this period could be reduced.

Our findings indicate clearly that the average duration of doctoral study for those in the NDEA group was substantially shorter than that reported in the national statistics cited above. Furthermore, the NDEA Fellows required less time than those in the comparison group to complete their doctorates. The B.A. and Ph.D. time lapse for the 1960-61 and 1961-62 NDEA Fellows was 6.71 and 6.62 mean years, respectively--approximately two and one-half years less than the figures cited by Wilson in his study of doctoral recipients. The comparison group doctorates took approximately two years longer to complete than the 1960-61 NDEA doctorates with a B.A. and Ph.D. time lapse of 8.53 mean years ($t=7.10$, $p<.001$).[25]

The Entry and Ph.D. time lapse for the 1960-61 and 1961-62 NDEA Fellows was 5.94 and 5.78 mean years, respectively--approximately two to two and one-half years shorter than the time periods cited by Wilson and by the NAS study. The time lapse for the comparison group was 7.25 mean years, one and one-third years longer than the time required by the 1960-61 NDEA doctorates ($t=2.68$, $p<.01$).

[25] The difference between the duration means of the 1960-61 NDEA Fellows and the comparison group doctorates might reflect the greater proportion of students in the comparison group who had graduate training prior to 1960-61. Although comparisons of the duration of the doctorate are always hazardous insofar as it is difficult to control for the differences in full-time and part-time enrollment, it must be noted that, regardless of prior graduate training, the comparison group means were more similar to statistics cited by other studies than to the NDEA means.

As shown in Tables III-10 and -11, women took longer to complete the doctorate than men, both in terms of B.A. and Ph.D. time lapse ($t=4.94$, $p<.001$), and in terms of Entry and Ph.D. time lapse ($t=2.68$, $p<.01$).[26]

In Tables III-12 and III-13 the mean years for B.A. and Ph.D. time lapse and for Entry and Ph.D. time lapse are given by study fields for men doctorates only.[27] The longest B.A. and Ph.D. span was for the doctorates in Education, followed by those in the Humanities and in the Social Sciences. The Humanities and the Social Sciences have been identified as slow-degree fields by numerous investigators who have also found that doctoral candidates in Education usually require the longest period of graduate study.[28] It was reported in Phase I of the NDEA Fellowship study that the NDEA Fellows who received their degrees in Education required less time than doctoral recipients in other fields.[29] This relationship is partially lost in our sample: although the mean Entry and Ph.D. time lapse for men in Education was shorter than for those in the Humanities and in the Social Sciences, the differences were small. However, although the number of cases are too small for

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[26]See Sharp, 1970, op. cit., and Astin, op. cit., for a discussion of enrollment and study trends among women graduate students.

[27]There were too few cases of women doctorates by study fields to allow for meaningful comparisons, and because women took longer than men to complete the doctorate, it was decided to present data only for men.

[28]NAS Doctoral Recipients, op. cit., pp. 66ff.; Wilson, op. cit., pp. 22ff.; and Allan Tucker, David Gottlieb, and John Pease, Attrition of Graduate Students, Final Report on Cooperative Research Project No. 1146, Publication No. 8, Michigan State University, East Lansing, 1964.

[29]Sharp et al., 1968, op. cit., p. 23.

meaningful comparisons, the duration of study for the doctorate in Education was longer for the comparison group men than for the NDEA Fellows. Folger, Astin, and Bayer[30] state that one of the reasons for lower and slower degree completion rates among students in Education is that they tend to enroll part-time, and that the duration of doctoral study in Education would be considerably shortened by full-time enrollment. Our data support this statement; full-time enrollment made possible by NDEA support allowed the NDEA Fellows in Education to complete their doctorate at rates comparable to those of students in the Natural Sciences and in a relatively shorter time. Since relatively few fellowships are provided in the field of Education, it appears desirable to increase the support given to students in this field.

A stepwise multiple regression analysis was performed, similar to that described earlier, to determine the relative importance of each factor in predicting the duration of doctoral completion while the effect of other factors were simultaneously controlled. Duration of doctoral completion was defined as time elapsed between the year of first entry into graduate school and the year when the doctorate was awarded. Table III-14 presents the variables which were significant above the .05 level and which explained at least one per cent of the variance in the duration of doctoral completion. Only four variables met these criteria, jointly explaining 35 percent of the variance.

The first variable that entered the regression analysis, explaining one-fourth of the variance, was pre-NDEA graduate experience: that is, those students who had graduate training prior to the receipt of the NDEA Fellowship took longer to complete the doctorate than those who

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[30] Folger, Astin, and Bayer, op. cit., p. 192.

were first year students. It was shown with an earlier regression analysis dealing with doctoral completion that Fellows with pre-NDEA graduate schooling were less likely to complete the doctorate than others. The regression analysis with the duration of doctoral completion clearly indicated the negative effect of pre-NDEA training on this variable as well. An examination of the zero-order correlations both within the total NDEA group (to determine correlates of doctoral completion) and within the NDEA doctoral group (to determine correlates of the duration of doctoral completion) revealed some of the reasons why Fellows with pre-NDEA credits were less likely to obtain the degree and, when they do obtain it, why they were likely to require a longer time than others (see zero-order correlations in Appendix A). Fellows with pre-NDEA graduate experience were more likely to be in Education, have earned a master's degree, have a two-year or a one-year NDEA award (rather than a three-year award), and experience financial difficulties. The correlations also indicated that the students with pre-NDEA credits were less likely to be in the Natural Sciences than in other fields.

Full-time dissertation work helped shorten the duration of doctoral completion, while a high score on the Difficulty Scale correlated positively: i.e., the students who experienced difficulty with various aspects of their doctoral studies required a longer time than others to complete the doctorate. Finally, having a one-year NDEA award was positively related to the length of doctoral completion.

The only factor which both enhanced doctoral completion and shortened the duration of doctoral studies was full-time dissertation work. A high score on the Difficulty Scale was the one common negative factor.

It was mentioned earlier that extending NDEA support for another year to allow for full-time dissertation work would go a long way toward promoting completion of the doctorate among candidates faced with the necessity of full-time or part-time employment while still working on the dissertation. This suggestion appears to conflict with the findings discussed above, which indicate that supporting an advanced student with a short-term NDEA award does not necessarily lead to higher rates of doctoral completion, nor shorten the duration of doctoral completion. The recommendation here is not to support advanced students in general, particularly not those with M.A.'s, but to make possible an additional year of full-time study for NDEA Fellows who have completed all doctoral requirements but the dissertation within the tenure of their NDEA Fellowship.

Doctoral Completion and Duration of Predoctoral Study Among those in the Comparison Group

To round out our picture of doctoral completion and duration of graduate study, we conclude this section with the results of separate analyses performed for the comparison group.

It was mentioned earlier that the rate of doctoral completion among those in the comparison group was larger than that among the total 1960-61 NDEA group, but slightly smaller than that of the smaller group of 1960-61 NDEA Fellows who had completed Fellowship tenure. It was also mentioned that the comparison group doctorates took longer to obtain the degree than did the NDEA doctorates.

To explore these differences, three analyses were performed. A stepwise multiple regression analysis was first performed with all of

the respondents (i.e., both NDEA cohorts, and the comparison group) to determine whether or not being in the comparison group was related to the completion of the doctorate after some of the factors which had been shown to affect doctoral completion were controlled: e.g., importance of the doctorate, full-time dissertation schedule, study fields, sex, etc. The results indicated that belonging to the comparison group was not a significant predictor of doctoral completion, but that doctoral completion was dependent on the factors cited above. Two stepwise multiple regression analyses were then run with the comparison group students only, to determine the factors which contributed to doctoral completion and to the duration of doctoral completion among those in this group. A further purpose of these analyses was to examine the similarity or dissimilarity of important factors between the NDEA and comparison groups.

Major factors contributing to doctoral completion were found on the basis of these analyses to be similar among people in the comparison group and the NDEA Fellows (Table III-15). Among those common to both cohorts were importance attributed to the doctoral degree, full-time dissertation work, absence of prior graduate training, perception of doctoral program as very adequate, and field continuity. In addition, as in the case of the NDEA Fellows, comparison group members who experienced difficulty with predoctoral studies in general (Difficulty Scale) were less likely than others in their group to complete the doctorate although, again, the experiencing of specific difficulties--such as difficulties with dissertation or with faculty--was positively related to doctoral completion. And, getting married either before or during the first year of doctoral studies enhanced the likelihood of attaining the doctorate among those in this group as well as among the NDEA Fellows.

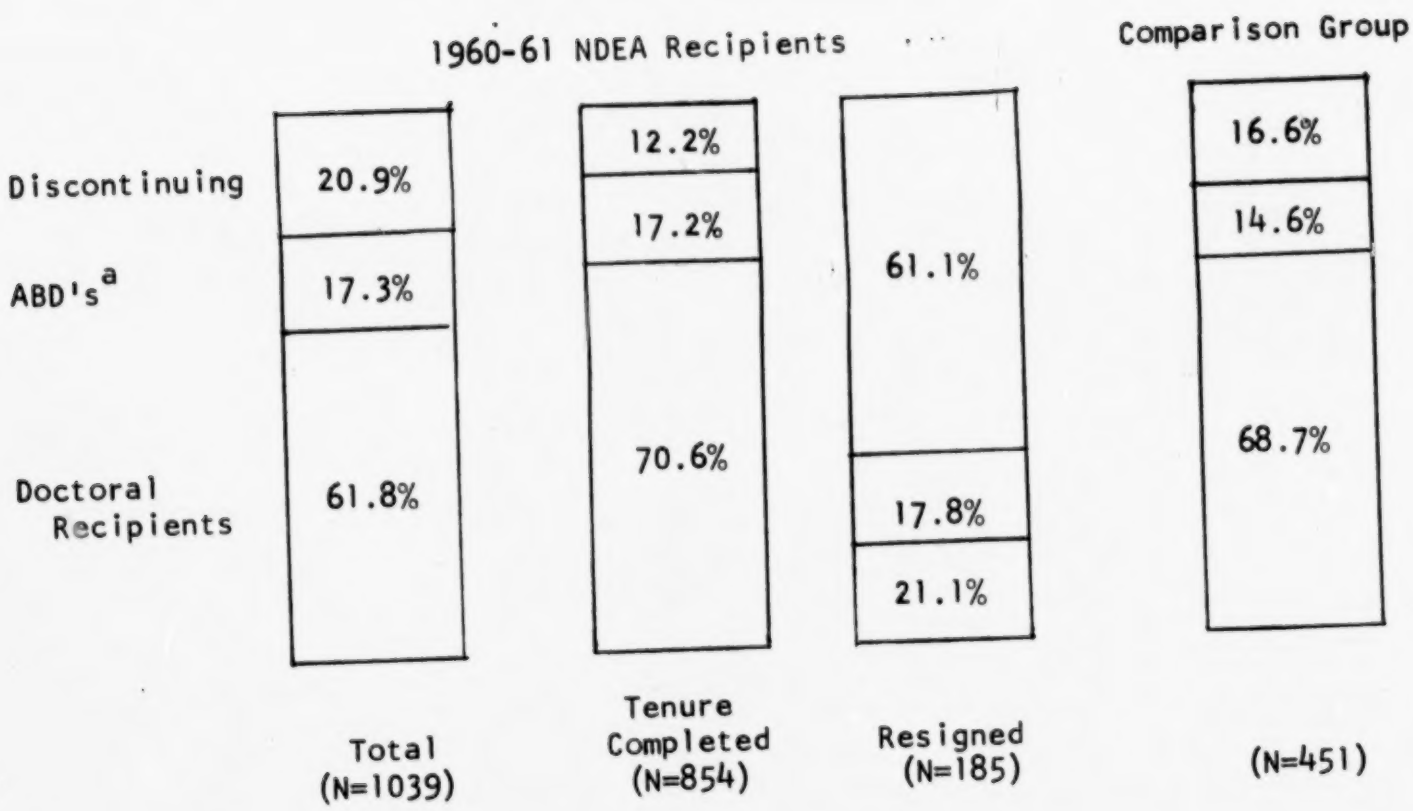
There were some differences, however. Women in the comparison group were even less likely than the female NDEA Fellows to receive their doctorates as compared with men in the respective cohorts. In addition, the size of the town in which one graduated from high school was positively related to doctoral completion among comparison group members, with students coming from large urban areas having a better chance of receiving the doctorate than those from smaller towns and rural areas. This factor was not significantly related to doctoral completion among the NDEA Fellows.

Factors found to contribute to duration of doctoral completion among members of the comparison group are presented in Table III-16; again, there were similarities between the NDEA Fellows and the respondents in this group. As was the case with the Fellows, both field continuity and full-time dissertation work tended to shorten the duration of predoctoral study while graduate training prior to the 1960-61 academic year and having difficulties during graduate school tended to lengthen it.

Among members of the comparison group, however, students who were in Education required a longer time than others in their cohort to complete graduate study; this was not the case among the NDEA Fellows.

Another important factor which differentiated between the groups in terms of duration of doctoral completion was parental income. This factor correlated negatively with the duration of doctoral completion among those in the comparison group in that the higher the annual parental income at the time of college graduation, the shorter the time required for doctoral completion. Since annual parental income was not a significant predictor of the duration of doctoral completion among

the NDEA Fellows, it might be assumed that the NDEA grant was successful in enabling students to attain doctorates who otherwise might not have been able to afford to attend graduate school or motivated to make the effort. This finding fits in with the one reported above showing that the comparison group respondents who had graduated from high schools located in urban areas were more likely than those from small towns and rural areas to complete the doctorate. Since the size of the town in which one graduatedfrom high school was not a significant factor in doctoral completion among NDEA Fellows, again it may be assumed that the NDEA grant was successful in promoting the attainment of the doctorate among students who might otherwise have not aspired to this degree. All in all, the NDEA Fellowship program seems to have served as an equalizer of opportunity for many students from relatively deprived and geographically isolated environments.



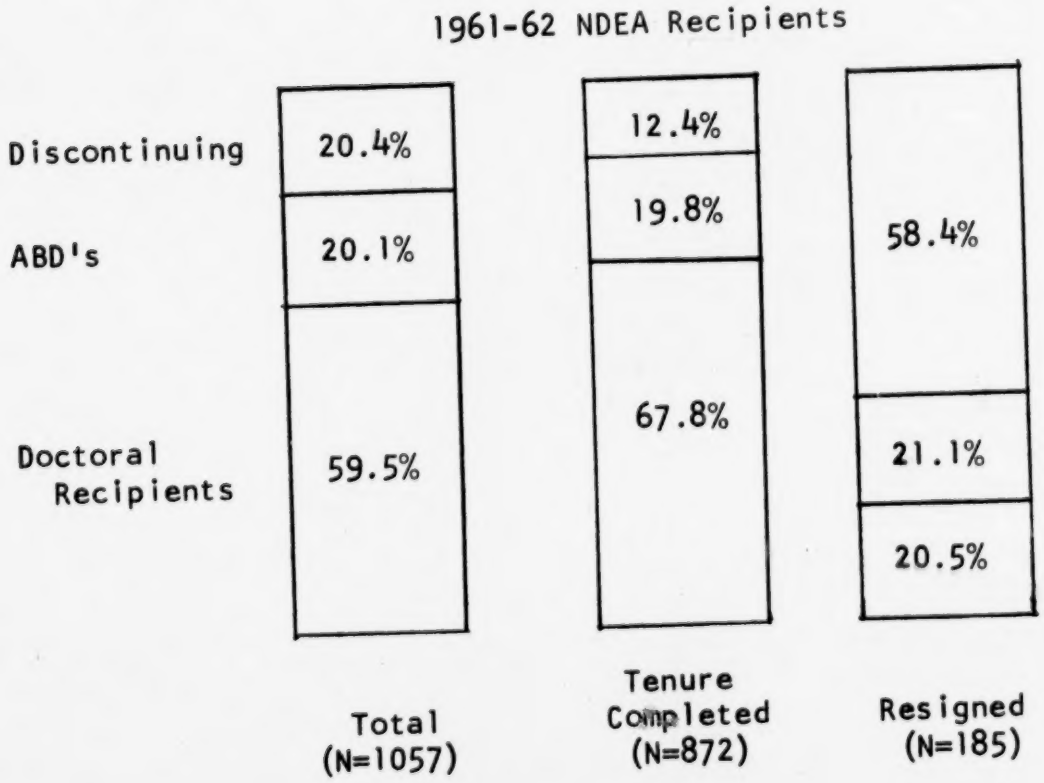


FIGURE III-1

DOCTORAL COMPLETION RATES FOR NDEA RECIPIENTS BY YEAR OF AWARD AND TENURE STATUS AND FOR COMPARISON GROUP STUDENTS

[a]"All but dissertation"; refers to those who intend to complete their doctorate.

TABLE III-1

PROPORTION OF RESPONDENTS WHO HAD FULL-TIME COURSEWORK AND DISSERTATION SCHEDULES, BY SEX

Full-time Schedule	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Coursework	84.4	78.9	83.7	81.1	76.9	80.6	55.2	52.1	54.6
(N)	(895)	(133)	(1028)	(920)	(121)	(1041)	(368)	(73)	(441)
Dissertation	45.0	24.7	42.8	43.7	21.8	41.7	37.7	41.3	38.1
(N)	(769)	(93)	(862)	(810)	(87)	(897)	(342)	(46)	(388)

TABLE III-2

PROPORTION OF RESPONDENTS COMPLETING DOCTORAL REQUIREMENTS WITHIN THE SECOND OR THIRD YEAR OF DOCTORAL STUDIES:[a] NDEA FELLOWS AND COMPARISON GROUP
(In percentages)

Doctoral Requirements	1960-61 NDEA		1961-62 NDEA		Comparison Group	
	Within 2 Yrs.	Within[b] 3 Yrs.	Within 2 Yrs.	Within[b] 3 Yrs.	Within 2 Yrs.	Within[b] 3 Yrs.
All coursework requirements	18.4	57.5	21.0	59.2	21.1	44.4
Residence requirements	18.5	53.5	24.3	52.9	22.4	39.5
Passed the general qualifying examinations	23.8	50.2	30.5	54.2	24.8	42.8
Completed language or tool requirements	31.9	54.5	40.0	59.9	25.1	42.8
Dissertation topic approved	22.0	42.0	27.3	48.8	22.6	39.2
Finished collecting data for dissertation	3.5	16.6	4.3	21.8	6.9	19.8
Submitted draft of dissertation	1.1	11.9	1.5	15.0	2.9	15.5
Dissertation approved	1.1	10.9	0.6	12.0	2.5	13.6
Base (N)	(1039)	(1039)	(1057)	(1057)	(451)	(451)

[a]Starting with receipt of NDEA award, i.e., either 1960-61 or 1961-62; for the comparison group, starting with 1960-61. Since about 40 per cent of the students in the comparison group had graduate training prior to 1960-61, the comparison group figures are over-estimates of work completed within "two or three" years.

[b]Cumulative total.

TABLE III-3

IMPORTANCE OF DOCTORAL DEGREE FOR CAREER SUCCESS:
NDEA RECIPIENTS AND COMPARISON GROUP
(In percentages)

Degree of Importance	1960-61 NDEA	1961-62 NDEA	Comparison Group
Absolutely necessary	62.1	63.8	67.5
Very important	20.3	20.9	19.7
Rather important	5.3	5.8	4.5
Not very important	12.4	9.5	8.3
Total %	100.0	100.0	100.0
(N)	(1027)	(1044)	(446)

TABLE III-4

PROPORTION OF NDEA RECIPIENTS AND COMPARISON GROUP RESPONDENTS WHO SAID THE "RIGHT AMOUNT" OF EMPHASIS WAS PLACED ON VARIOUS ASPECTS OF THEIR DOCTORAL PROGRAM

Aspects of Doctoral Program	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Doctoral dissertation	80.2	76.7	79.8	81.6	80.6	81.5	87.8	76.2	86.0
(N)	(828)	(116)	(944)	(870)	(108)	(978)	(353)	(63)	(416)
Coursework in major field	73.9	75.4	74.1	78.3	81.6	78.7	73.8	75.0	74.0
(N)	(851)	(122)	(973)	(894)	(114)	(1008)	(362)	(68)	(430)
Coursework in minor field	65.9	57.0	64.9	67.6	62.5	67.0	68.0	61.8	67.0
(N)	(768)	(100)	(868)	(777)	(96)	(873)	(297)	(55)	(352)
Other required coursework	67.5	55.6	66.0	69.0	62.4	68.3	68.9	61.2	67.7
(N)	(664)	(90)	(754)	(691)	(85)	(776)	(264)	(49)	(313)
Language or tool requirements	53.2	61.3	54.2	53.3	66.7	54.8	55.8	65.2	57.2
(N)	(836)	(119)	(955)	(869)	(111)	(980)	(355)	(66)	(421)

TABLE III-5

PROPORTION OF NDEA RECIPIENTS AND COMPARISON GROUP RESPONDENTS WHO PERCEIVED ASPECTS OF THEIR DOCTORAL PROGRAM AS "VERY ADEQUATE" OR "ADEQUATE"

Aspects of Doctoral Program	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Opportunity for study-related experience prior to dissertation	64.8	54.7	63.5	65.3	54.5	64.2	71.5	75.4	72.1
(N)	(756)	(108)	(864)	(798)	(88)	(886)	(326)	(61)	(387)
Accessibility of faculty for individual consultation	76.7	75.2	76.4	77.4	80.0	77.7	75.5	82.4	76.6
(N)	(861)	(129)	(990)	(897)	(115)	(1012)	(363)	(68)	(431)
Freedom to adjust program to individual academic interests	66.7	62.5	66.1	71.7	60.3	70.5	70.4	63.8	69.3
(N)	(858)	(128)	(986)	(890)	(111)	(1001)	(361)	(69)	(430)
Assistance and direction from thesis advisor	67.5	67.8	67.5	68.8	72.2	69.2	71.4	71.4	71.4
(N)	(813)	(112)	(925)	(859)	(97)	(956)	(350)	(56)	(406)
Cooperation from dissertation committee	74.8	75.3	74.8	77.4	80.0	77.7	78.5	73.9	78.0
(N)	(723)	(81)	(804)	(754)	(80)	(834)	(317)	(46)	(363)

TABLE III-6

FACTORS CREATING ANY DIFFICULTY DURING DOCTORAL STUDIES FOR NDEA RECIPIENTS AND COMPARISON GROUP,[a] BY SEX
(Per cent encountering each difficulty)

Total NDEA Fellows				Comparison Group			
Men		Women		Men		Women	
Writing dissertation off-campus	74.7	Writing dissertation off-campus	77.9	Writing dissertation off-campus	75.7	Writing dissertation off-campus	83.3
Financial problems	56.9	Dissertation	62.9	Financial problems	69.6	Financial problems	62.0
Dissertation	54.8	Family obligations	51.8	Family obligations	53.6	Dissertation	57.7
Family obligations	50.0	Poor courses	51.7	Dissertation	52.5	Poor courses	53.1
Poor courses	46.5	Loss of interest	48.5	Language requirements	48.3	Family obligations	50.0
Language requirements	41.7	Financial problems	45.6	Poor courses	43.0	Holding a teaching assistantship	44.0
Loss of interest	38.5	Changes in thesis topic	40.5	Holding a teaching assistantship	41.8	Changes in academic interests	37.5
Changes in academic interests	33.0	Changes in academic interests	39.9	General exams	35.0	Dissertation committee	35.4
Changes in thesis topic	33.0	Language requirements	34.2	Loss of interest	35.0	Loss of interest	34.8
General exams	27.7	Holding a teaching assistantship	32.6	Changes in thesis topic	27.8	Inaccessibility of faculty	29.7
Inaccessibility of faculty	26.3	General exams	31.9	Changes in academic interests	27.7	General exams	26.2
Holding a teaching assistantship	25.3	Dissertation committee	27.9	Inaccessibility of faculty	26.3	Changes in thesis topic	25.7
Dissertation committee	23.9	Inaccessibility of faculty	26.8	Holding a research assistantship	18.7	Holding a research assistantship	21.4
Unsatisfactory academic progress	13.9	Unsatisfactory academic progress	17.5	Dissertation committee	18.5	Language requirements	19.4
Military service	13.8	Holding a research assistantship	16.4	Unsatisfactory academic progress	18.0	Unsatisfatory academic progress	17.5
Holding a research assistantship	8.4			Military service	15.2		

[a] "Does not apply" or "No answer" frequencies were excluded from base totals; percentages are thus based only on the respondents for whom each factor was applicable.

TABLE III-7

PROPORTION OF NDEA AND COMPARISON GROUP DOCTORATES IN EACH STUDY FIELD
(In percentages)

Study Fields	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Education	84.3	[4]	75.8	81.2	[4]	78.8	[7]	[1]	[8]
(N)	(51)	(11)	(62)	(64)	(7)	(71)	(9)	(2)	(11)
Humanities	51.7	28.3	46.4	43.5	28.3	40.2	63.3	34.4	53.9
(N)	(205)	(60)	(265)	(191)	(53)	(244)	(60)	(29)	(89)
Business and Professions	66.6	[1]	67.8	79.1	[-]	79.1	[1]	[-]	[1]
(N)	(27)	(1)	(28)	(24)	(0)	(24)	(1)	(0)	(1)
Social Sciences	56.5	36.1	53.6	58.1	30.0	54.8	61.2	[6]	57.8
(N)	(223)	(36)	(259)	(220)	(30)	(250)	(93)	(16)	(109)
Psychology	[11]	[4]	[15]	82.6	[3]	78.5	84.2	[8]	80.0
(N)	(13)	(6)	(19)	(23)	(5)	(28)	(38)	(12)	(50)
Biological Sciences	79.5	[13]	79.0	76.4	[8]	74.8	83.3	[8]	84.1
(N)	(83)	(17)	(100)	(106)	(13)	(119)	(54)	(9)	(63)
Physical Sciences	73.7	[3]	72.1	65.8	[4]	63.4	75.2	[3]	72.8
(N)	(179)	(8)	(187)	(173)	(13)	(186)	(85)	(7)	(92)
Engineering	69.5	[1]	69.7	64.9	[1]	63.7	83.3	[-]	83.3
(N)	(118)	(1)	(119)	(131)	(4)	(135)	(36)	(0)	(36)
Total %	65.2	40.0	61.8	62.7	35.2	59.5	72.9	48.0	68.7
N	(899)	(140)	(1039)	(932)	(125)	(1057)	(376)	(75)	(451)

TABLE III-8

DOCTORAL COMPLETION OF NDEA FELLOWS:
STEPWISE MULTIPLE REGRESSION RESULTS
AND ZERO-ORDER CORRELATIONS[a]

Variables[b]	Percentages Explained in Variance[c]	Coefficient	β Weight
(Constant)		(1.1108)	
1. Importance of Ph. D.	23.6	0.095	0.194
2. Full-time thesis work	12.6	0.223	0.218
3. Social Science	4.5	-0.163	-0.164
4. Difficulty Scale	3.8	-0.067	-0.484
5. Length of graduate training	3.0	0.039	0.191
6. Changing NDEA School	2.4	-0.132	-0.093
7. M. A. Degree	1.3	-0.112	-0.096
8. Similarity of B. A. and Ph. D. Field	1.0	0.082	0.078
9. Difficulty: Poor courses	0.8	0.154	0.157
10. Difficulty: Language requirements	0.8	0.118	0.117
11. Tenure completion	0.8	0.107	0.084
12. Adequacy of doctoral program	0.7	0.019	0.127
13. Difficulty: Thesis Committee	0.7	0.155	0.123
14. Difficulty: Dissertation	0.6	0.118	0.120
15. Sex	0.6	-0.088	-0.060

a. $r = <.05$.

b. Seventy-three variables were included in the analysis; however, only those which entered the regression analysis with an F value above .05 and which explained at least one per cent of variance in doctoral completion are included in the table.

c. Increase in r^2.

TABLE III-8--Continued

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Importance of Ph. D.	-															
2. Full-time thesis work	.24	-														
3. Social Science	-.26	-.27	-													
4. Difficulty Scale	-.17	-.30	.13	-												
5. Length of graduate training	.09	-.13	-.06	.08	-											
6. Changing NDEA School	-.14	-.10	-	.09	-	-										
7. Master's degree	-.15	-.11	.11	.06	.11	.13	-									
8. Similarity of B. A. and Ph. D. Field	.22	.16	-.38	-.08	-	-	-.12	-								
9. Difficulty: Poor courses	-.10	-.07	-	.39	-	.07	-	-	-							
10. Difficulty: Language requirements	-	-	-	.29	-	-	-	-	.10	-						
11. Tenure completion	.38	.19	-.21	-.07	-	-.39	-.19	.22	-.07	-	-					
12. Adequacy of doctoral program	.18	.20	-.13	-.44	-	-	-	.06	-.28	-	-	-				
13. Difficulty: Thesis Committee	.06	-.06	-	.31	.07	-	-	-	.08	-	.12	-.32	-			
14. Difficulty: Dissertation	.13	-.13	-	.40	.09	-.07	-.06	-	.06	.09	.23	-.20	.25	-		
15. Sex	-.08	-.16	.11	-	-	-	-	-.11	-	-.06	-.09	-	-	-	-	
16. Ph. D. completion	.49	.46	-.40	-.37	.16	-.26	-.22	.32	-.07	-	.38	.29	-	-	-.18	-

TABLE III-9

PROPORTION OF NDEA AND COMPARISON GROUP RESPONDENTS IN VARIOUS STUDY FIELDS WHO THINK DOCTORAL TIME CAN BE SHORTENED
(In percentages)

Study Fields	1960-61 NDEA			1961-62 NDEA			Comparison Group		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Education	27.1	[5]	31.0	27.9	[2]	27.9	[3]	[1]	[4]
(N)	(48)	(10)	(58)	(61)	(7)	(68)	(8)	(2)	(10)
Humanities	46.0	41.4	44.9	49.2	37.5	46.8	50.0	28.0	43.2
(N)	(189)	(58)	(247)	(185)	(48)	(233)	(56)	(25)	(81)
Business and Professions	32.0	[0]	30.8	54.5	[-]	54.5	[0]	[-]	[0]
(N)	(25)	(1)	(26)	(22)	(0)	(22)	(1)	(0)	(10)
Social Sciences	40.6	43.7	41.0	46.9	42.9	46.4	53.5	[7]	53.5
(N)	(202)	(32)	(234)	(209)	(28)	(237)	(86)	(13)	(99)
Psychology	[2]	[2]	[4]	38.1	[3]	42.3	38.9	[2]	34.0
(N)	(13)	(6)	(19)	(21)	(5)	(26)	(36)	(11)	(47)
Biological Sciences	16.0	[7]	20.4	28.0	[3]	27.7	26.0	[3]	27.6
(N)	(81)	(17)	(98)	(100)	(12)	(112)	(50)	(8)	(58)
Physical Sciences	33.9	[1]	33.3	36.8	[4]	36.4	30.9	[1]	29.9
(N)	(174)	(6)	(180)	(163)	(13)	(176)	(81)	(6)	(87)
Engineering	37.1	[-]	37.1	35.4	[-]	35.4	18.7	[-]	18.7
(N)	(105)	(0)	(105)	(113)	(0)	(113)	(32)	(0)	(32)
Total %	36.2	40.8	36.8	40.5	37.2	40.1	38.6	32.3	37.6
(N)	(837)	(130)	(967)	(874)	(113)	(987)	(350)	(65)	(415)

TABLE III-10

TIME FROM B. A. TO Ph. D. DEGREE FOR NDEA AND COMPARISON GROUP DOCTORATES
(In percentages)

Years Elapsed	1960-61 NDEA Doctorates			1961-62 NDEA Doctorates			Comparison Group Doctorates		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
2 years or less	0.7	-	0.6	0.2	-	0.2	1.5	-	1.3
3 years	5.5	3.6	5.4	5.2	-	4.8	4.4	-	3.9
4 years	16.8	9.1	16.1	18.7	18.6	18.7	9.6	11.1	9.8
5 years	19.2	12.7	18.6	23.2	14.0	22.5	12.9	22.2	14.0
6 years	18.7	14.5	18.3	18.5	16.3	18.4	12.5	8.3	12.0
7 years	10.0	16.4	10.6	11.2	18.6	11.8	12.2	2.8	11.1
8 years	12.3	12.7	12.3	7.1	7.0	7.1	12.2	5.6	11.4
9 years	5.5	12.7	6.2	3.5	2.3	3.4	9.6	2.8	8.8
10 years	1.7	3.6	1.9	2.8	2.3	2.7	2.6	5.6	2.9
11 years	1.6	1.8	1.6	1.6	-	1.4	3.3	5.6	3.6
12 years	2.6	1.8	2.5	1.6	2.3	1.6	4.1	-	3.6
13 years or more	5.5	10.9	6.0	6.6	18.6	7.4	15.1	36.1	17.6
Total % (N)	100.0 (579)	100.0 (55)	100.0 (634)	100.0 (578)	100.0 (43)	100.0 (621)	100.0 (271)	100.0 (36)	100.0 (307)
Mean number of years:	6.61	7.84	6.71	6.47	8.63	6.62	8.21	10.90	8.53
Median years:	6.3	7.5	6.4	6.0	7.0	6.1	7.6	8.9	7.7

TABLE III-11

TIME FROM ENTRY INTO GRADUATE SCHOOL TO Ph. D. DEGREE FOR NDEA AND COMPARISON GROUP DOCTORATES
(In percentages)

Years Elapsed	1960-61 NDEA Doctorates			1961-62 NDEA Doctorates			Comparison Group Doctorates		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
2 years or less	0.3	-	0.3	0.2	-	0.2	1.1	-	1.0
3 years	9.0	3.6	8.6	8.4	4.5	8.1	4.4	2.8	4.2
4 years	18.8	8.9	17.9	23.4	18.2	23.0	10.9	16.7	11.6
5 years	24.2	32.1	24.9	23.9	22.7	23.8	15.3	22.2	16.1
6 years	17.4	16.1	17.3	19.0	20.5	19.1	16.8	11.1	16.1
7 years	10.1	10.7	10.1	10.8	13.6	11.0	13.5	2.8	12.3
8 years	10.4	14.3	10.7	5.5	11.4	5.9	12.8	16.7	13.2
9 years	3.4	7.1	3.7	2.9	-	2.7	8.4	5.6	8.1
10 years	1.7	3.6	1.9	1.5	-	1.4	3.6	2.8	3.5
11 years	0.5	-	0.5	1.2	2.3	1.3	2.9	5.6	3.2
12 years	1.0	-	0.9	1.4	-	1.3	1.8	-	1.6
13 years or more	3.1	3.6	3.1	1.9	6.8	2.2	8.4	13.9	9.0
Total % (N)	100.0 (586)	100.0 (56)	100.0 (642)	100.0 (585)	100.0 (44)	100.0 (629)	100.0 (274)	100.0 (36)	100.0 (310)
Mean number of years:	5.94	6.54	5.94	5.73	6.50	5.78	7.19	7.72	7.25
Median years:	5.8	6.2	5.8	5.6	6.1	5.7	7.0	6.6	7.0

TABLE III-12

MEAN NUMBER OF YEARS BETWEEN B. A. AND Ph. D. DEGREE
FOR NDEA AND COMPARISON GROUP DOCTORATES
BY STUDY FIELD: MEN ONLY

Study Fields	1960-61 NDEA Men	1961-62 NDEA Men	Comparison Group Men
Education	8.91	8.88	[13.71]
(N)	(43)	(52)	(7)
Humanities	7.63	6.92	8.87
(N)	(106)	(86)	(38)
Business and Professions	[7.06]	[6.06]	[12.00]
(N)	(18)	(18)	(1)
Social Sciences	6.72	6.56	9.00
(N)	(127)	(129)	(57)
Psychology	[6.36]	[6.63]	6.44
(N)	(11)	(19)	(32)
Biological Sciences	5.58	6.72	7.80
(N)	(67)	(81)	(45)
Physical Sciences	5.66	5.43	7.75
(N)	(132)	(113)	(64)
Engineering	6.17	5.54	7.85
(N)	(75)	(80)	(27)

TABLE III-13

MEAN NUMBER OF YEARS BETWEEN ENTRY INTO GRADUATE SCHOOL
AND DATE OF THE DOCTORATE FOR NDEA
AND COMPARISON GROUP DOCTORATES
BY STUDY FIELD: MEN ONLY

Study Fields	1960-61 NDEA Men	1961-62 NDEA Men	Comparison Group Men
Education	6.28	6.04	[11.14]
(N)	(43)	(52)	(7)
Humanities	6.85	6.35	7.95
(N)	(106)	(86)	(38)
Business and Professions	[5.89]	[5.61]	[9.00]
(N)	(18)	(18)	(1)
Social Sciences	6.36	6.10	7.82
(N)	(127)	(129)	(57)
Psychology	[5.09]	[5.42]	5.66
(N)	(11)	(19)	(32)
Biological Sciences	4.97	5.88	6.84
(N)	(67)	(81)	(45)
Physical Sciences	5.32	5.02	6.88
(N)	(132)	(113)	(64)
Engineering	5.83	5.24	6.63
(N)	(75)	(80)	(27)

TABLE III-14

DURATION OF DOCTORAL COMPLETION AMONG NDEA DOCTORATES: ZERO-ORDER CORRELATIONS[a] AND STEPWISE MULTIPLE REGRESSION RESULTS

Variables[b]	1	2	3	4	5
1. Pre-NDEA graduate credits	-				
2. Full-time dissertation work	-	- 1			
3. Difficulty Scale	-	-.23	-		
4. One year NDEA award	.11	-	-	-	
5. Duration of doctoral completion	.50	-.28	.19	.15	-

	Percentage[c] Explained in Variance	Coefficient	β Weight
(Constant)		(0.575)	
Pre-NDEA graduate training	25.3	3.152	0.469
Full-time dissertation work	7.6	-1.168	-0.222
Difficulty Scale	1.3	0.088	0.079
One year NDEA award	0.6	2.407	0.072

a. $r = < .05$.

b. Seventy-two variables were included; however, only those variables which entered the regression analysis with an F value above .05 and which explained at least one per cent of the variance are included in the table.

c. Increase in r^2.

TABLE III-15

DOCTORAL COMPLETION OF COMPARISON GROUP STUDENTS:[a]
STEPWISE MULTIPLE REGRESSION RESULTS
AND ZERO-ORDER CORRELATIONS[b]

Variables[c]	Percentage Explained in Variance[d]	Coefficient	β Weight
(Constant)		(0.146)	
1. Importance of Ph. D.	21.5	0.137	0.256
2. Full-time Thesis work	8.9	0.231	0.222
3. Length of graduate training	5.8	0.034	0.232
4. Difficulty Scale	3.4	-0.082	-0.640
5. Sex	2.1	-0.127	-0.097
6. Adequacy of doctoral program	1.7	0.022	0.140
7. Similarity of B. A. and Ph. D. Fields	1.5	0.119	0.103
8. Difficulty: Thesis Committee	1.5	0.264	0.201
9. Difficulty: Language requirements	0.9	0.159	0.159
10. Size of high-school graduation town	0.8	0.036	0.086
11. Marry before or during first year	0.6	0.100	0.102
12. Difficulty: Faculty	0.6	0.106	0.094

a. N = 451.

b. r = $<.05$.

c. Seventy-three variables were included; however, only those variables which entered the regression equation with an F value above .05 and which explained at least one per cent of the variance in doctoral completion are included in the table.

d. Increase in r^2.

TABLE III-15--Continued

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Importance of Ph. D.	-																
2. Full-time Thesis work	.24	-															
3. Length of graduate training	.17	-.10	-														
4. Difficulty Scale	-.06	-.27	.07	-													
5. Sex	-.09	-.07	-	-	-												
6. Adequacy Scale	.08	.21	-	-.39	-	-											
7. Similarity of B. A. and Ph. D. Fields	.11	.13	-.13	-	-.16	-	-										
8. Difficulty: Thesis Committee	-	-.14	.16	.39	.08	-.26	-	-									
9. Difficulty: Language requirements	.14	-.06	-	.37	-.21	-	.09	.14	-								
10. Size of high school graduation town	-	.06	-	-.09	.08	-	-	-	-.07	-							
11. Marry before or during first year	.16	-	.22	.09	-.08	-	-	-	.08	-.07	-						
12. Difficulty: Faculty	-	-	-	.42	-	-.46	-.12	.25	.09	.07	.08	-					

TABLE III-15--Continued

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
13. Difficulty: Changing major	-.12	-	-.09	.38	.07	-.16	-	-	.09	.07	-.12	.12	-				
14. Difficulty: Dissertation	.06	-.22	.12	.43	-.06	-.19	-	.24	.06	-.06	-	.08	-	-			
15. Difficulty: Finances	-	-.17	.07	.34	-	-	-	-	.15	-.12	.15	-	-.06	.07	-		
16. Undergraduate grade letter average	-	.06	-	-	.24	-	.07	-	-.19	-	-.09	-	-	-	-	-	
17. Ph. D. Completion	.46	.40	.27	-.28	-.19	.27	.18	-	.09	.11	.17	-.09	-.13	-.06	-	-	-

TABLE III-16

DURATION OF DOCTORAL COMPLETION AMONG COMPARISON GROUP DOCTORATES: ZERO-ORDER CORRELATIONS[a] AND RESULTS OF STEPWISE MULTIPLE REGRESSION ANALYSIS

Variables[b]	1	2	3	4	5	6	7	8
1. Graduate training prior to 1960-61	-							
2. Similarity of B. A. and Ph. D. fields	-.12	-						
3. Full-time dissertation work	-.18	.06	-					
4. Difficulty: Thesis topic	-	-	-	-				
5. Education	.14	-.34	-	-.07	-			
6. Parental income	-.19	-	-	.11	-.08	-		
7. Difficulty Scale	.12	-	-.23	.24	-.06	-	-	
8. Duration of doctoral completion	.54	-.26	-.28	.12	.22	-.16	.18	-

a. $r = < .05$.

b. Seventy-three variables were included; however, only those variables which entered the regression equation with an F value above .05 and which explained at least one per cent of the variance are included in the table.

TABLE III-16--Continued

	Percentage[c] Explained in Variance	Coefficient	β Weight
(Constant)		(4.158)	
Graduate training prior to 1960-61	0.293	3.118	0.592
Similarity of B. A. and Ph. D. fields	0.039	-1.049	-0.154
Full-time dissertation work	0.030	-0.783	-0.149
Difficulty: Thesis topic	0.010	0.718	0.095
Education	0.009	2.218	0.134
Parental income	0.009	-0.389	-0.238
Difficulty Scale	0.008	0.219	0.294

c. Increase in r^2.

IV. EMPLOYMENT

The current employment status of the NDEA Fellows points to the success of the Fellowship program in its stated objective of increasing the number of qualified college or university teachers. Two-thirds of the Fellows in our sample were holding academic positions at the time of the survey, and had made plans to continue their academic careers in the future.

The rate of employment among the Fellows was related strongly to sex and doctoral status. Nine out of ten NDEA Fellows in the study held full-time positions, although the full-time employment rates were lower for women grantees than for men (Figure IV-1). However, the sex difference in full-time employment was dependent on doctoral status. In the nondoctoral group, the proportion of women grantees with full-time positions was only about half that of the men in the nondoctoral group; over three-fourths of the women with doctorates had full-time positions while almost all the men with that degree were employed full-time.

These two factors, sex and doctoral status, also relate strongly to type of employment. The doctoral degree was an important determinant of academic employment both for men and women grantees. That is, three-fourths of the men and over four-fifths of the women holding doctorates were employed in a college or university in contrast to fewer than half of the Fellows who did not have the doctorate (Table IV-1). About one-fourth of the men without the doctorate were employed in industry, while fewer than 10 per cent of the nondoctorate women were so employed. Those

with the doctorate were much less likely to be employed in industry than those who had not obtained the degree.

To some extent, the doctoral field determined entry into college or university teaching (Table IV-2). Only 40 per cent of the NDEA doctorates in Engineering were teaching in a college or university in contrast to 98 per cent of those who had obtained their degree in the Humanities.[1] Generally, the students in the Natural Sciences were less apt than others to be teaching in colleges or universities, although over half of these students (and in the case of doctorates in the Biological Sciences, about two-thirds) had academic employment.

When asked which activities were central to current employment, three-fourths of both men and women NDEA doctorates stated that teaching was a central activity (Figure IV-2). The current activity cited next most frequently by NDEA doctorates, and to a greater extent by men than by women, was research and development. One-fifth to one-fourth of the NDEA doctorates indicated that administrative work or consultation was a central activity of their current job, again by more men than women.

Similar trends were found among the nondoctorates, although the percentages of endorsements differed. For instance, only about 40 per cent of the NDEA nondoctorates stated that college teaching was a central activity and research and development activity was listed by only about 30 per cent; in both cases, only about half as many nondoctorates as doctorates endorsed these activities as central to current employment.

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[1]The proportion of nondoctorates in the Humanities who were teaching was consistently larger than the proportion of other nondoctorates. Folger, Astin, and Bayer, op. cit., p. 64, report that only about 40 per cent of the Humanities faculty members have doctoral degrees. Also see Sharp, 1970, op. cit., pp. 39ff., for a discussion of the relationship between study field and employment.

Administrative work was indicated by the nondoctorates as being a central activity in their current employment more often than consultation; more men than women indicated both of these activities to be central to their current employment. Finally, the proportion of NDEA Fellows who were teaching at a level lower than a college or university was larger among the nondoctorates than the doctorates.

The differences between activities central to current and ideal employment among male and female doctorates and nondoctorates are presented in Figure IV-2. It appears that more women than men, particularly among the nondoctorates, aspire to become college teachers, reflecting the normative or traditional trend in women's employment. And, a great many men and women who do not hold the doctorate and were not employed in a college or university at the time of the survey would like to become college teachers. This aspiration is also reflected in the responses given to the question regarding ideal long-run career employer (Table IV-3). Over 62 per cent of the nondoctorates stated that their ideal employer was academic; this was a much larger percentage than that of those employed in a college or university at the time of the survey. However, when asked the realistic question about the probability of their teaching (or continuing to teach) at a college or university at some time in the future, fewer nondoctorates gave a strongly affirmative answer (Table IV-4). No doubt the lack of the doctoral degree led to this assessment.

Overall, 60 per cent of the NDEA Fellows indicated that the probability of their teaching, or continuing to teach, in the near future was 90 per cent or more, with more doctorates than nondoctorates, and more women doctorates than men doctorates indicating this high level of

certainty. The Fellows in the Natural Sciences were less certain than those in other fields (Table IV-5).

Table IV-6 presents the percentages of NDEA Fellows endorsing various reasons for academic employment. More than half of the Fellows indicated that the following factors were very important in influencing them to enter college teaching: a flexible time schedule, intellectual stimulation, and the opportunity to keep up to date in one's field offered by academic employment. Over half of the Fellows also indicated that academic employment was the best way to work in their chosen field and that their ability as a teacher was an important factor in their decision to teach. Not many grantees seemed to feel a specific obligation to teach because of the financial support received from the NDEA program; fewer than 10 per cent cited this as a "very important" factor.

Finally, doctoral status differentiated slightly between those who obtained employment in the same field as the doctorate and those who were employed in a different field, although the majority of the NDEA Fellows tended to be employed in the same field as the one in which they received their doctorates (Table IV-7).

Similar trends were observed among those in the comparison group: the majority were employed full-time as college or university teachers, teaching in the same field as that in which they received their doctorates. Fewer women than men were employed full-time, although the differences in employment rates were smaller for the doctorates than for the nondoctorates. The only difference between the 1960-61 NDEA group and the comparison group was that more NDEA women doctorates (91.7%) than comparison group women doctorates (72.1%) were employed in colleges or universities.

A majority of the respondents in the NDEA group and in the comparison group were holding full-time positions at the time of the survey, most frequently in a college or university, and were generally committed to teaching, either at present or at some time in the near future. Since there is definitely a trend toward academic employment among the doctorates in both groups, it is difficult to assess whether or not the NDEA program developed a strong sense of commitment to teaching among the NDEA Fellows. To further investigate the factors related to teaching, stepwise multiple regression analyses were first performed with the NDEA group, then with the comparison group, using only those respondents who were employed at least part-time. The results of these analyses are presented in Tables IV-8 and IV-9.

In the analysis performed with the full-time or part-time employed NDEA Fellows, six of the 69 variables used in the regression equation explained about 45 per cent of the variance in academic employment.[2] The most interesting finding of the regression analysis was that not doctoral status in itself but rather the reasons behind the attainment of the degree were significant predictors of college or other teaching. The NDEA Fellows currently holding academic positions were more likely than others to state that college or university teaching was an activity most central to their long-run career objectives and that their long-run ideal employer was an academic institution. They were also more likely than others to attribute importance to the doctoral

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[2]Academic employment also included teaching at a level lower than college or university teaching. The criteria used to include variables in the text tables were similar to those discussed above: i.e., significance level above .05 and a minimum of one per cent explaining power.

degree for success in career goals. Fellows who stated that administrative work was an activity central to their long-run career objectives, and those in the Natural Sciences, were less likely than others to hold teaching positions. Finally, of all the reasons given for interest in academic employment, only one was significantly related to holding academic employment: endorsing the statement that college or university teaching offered economic security.

The results of the stepwise multiple regression analysis run with the comparison group students employed at least part-time produced similar results. A total of 68 variables were used, eight of which explained at a significant level over half of the variance in academic employment of comparison group respondents. Like NDEA Fellows, comparison group students who were currently holding academic positions were more likely than others to state that college or university teaching was an activity central to their long-run career objectives and that the ideal long-run career employer was an academic institution. Comparison group respondents who were in Education or in the Natural Sciences, who stated that the activity most central to their long-run career objectives was consultation, and who went to a graduate institution located in the Pacific region, were less likely than others to hold a teaching position. In addition to the economic security offered by academic employment, another factor which contributed to the attainment of an academic position among the members of this group was the belief that such a position offered an opportunity for research and writing.

It is difficult to assess the impact of the NDEA grant on the academic employment of NDEA Fellows. There was found to be no relationship

between holding a teaching position and endorsement of the importance of the grant obligation as a factor contributing to pursuit of an academic career. In the sense that the NDEA grant allows a large number of graduate students to obtain the doctorate in a relatively short period of time, and since a majority of the doctorates do become teachers, one might say that the program was successful in its objective of increasing the number of qualified college teachers. However, it may be that the Fellowship program has a more subtle but even stronger effect on both doctoral completion and academic employment. It was found that members of the comparison group who were currently holding teaching positions were not any more likely than those in that group who did not have academic jobs to attribute importance to the doctoral degree whereas the NDEA Fellows who were employed in academic institutions definitely tended to perceive the doctorate as a very important factor in the success of their future career plans.

Finally, Table IV-10 presents the levels of annual income earned by NDEA and comparison group respondents who were employed full-time in 1968. The income distribution was related to doctoral status and sex: the doctorates, both in the NDEA group and in the comparison group, earned almost $2,500 more a year than the nondoctorates, and men earned more than women.[3] A difference in annual income of between $2,000 and $5,000, which varied by sex and doctoral status, was found between the NDEA Fellows at the time of the survey, and their parents at the time their offspring had gotten their undergraduate degrees.

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[3]The sex differences in income were about $3,000 among the NDEA nondoctorates, $1,864 among the 1960-61 doctorates, and $3,105 among the 1961-62 doctorates. The sex difference among the comparison group doctorates was similar to that of the 1960-61 cohort. The discrepancy between the earning capacity of men and women in the two cohorts is rather interesting but the small number of women respondents precludes further interpretations.

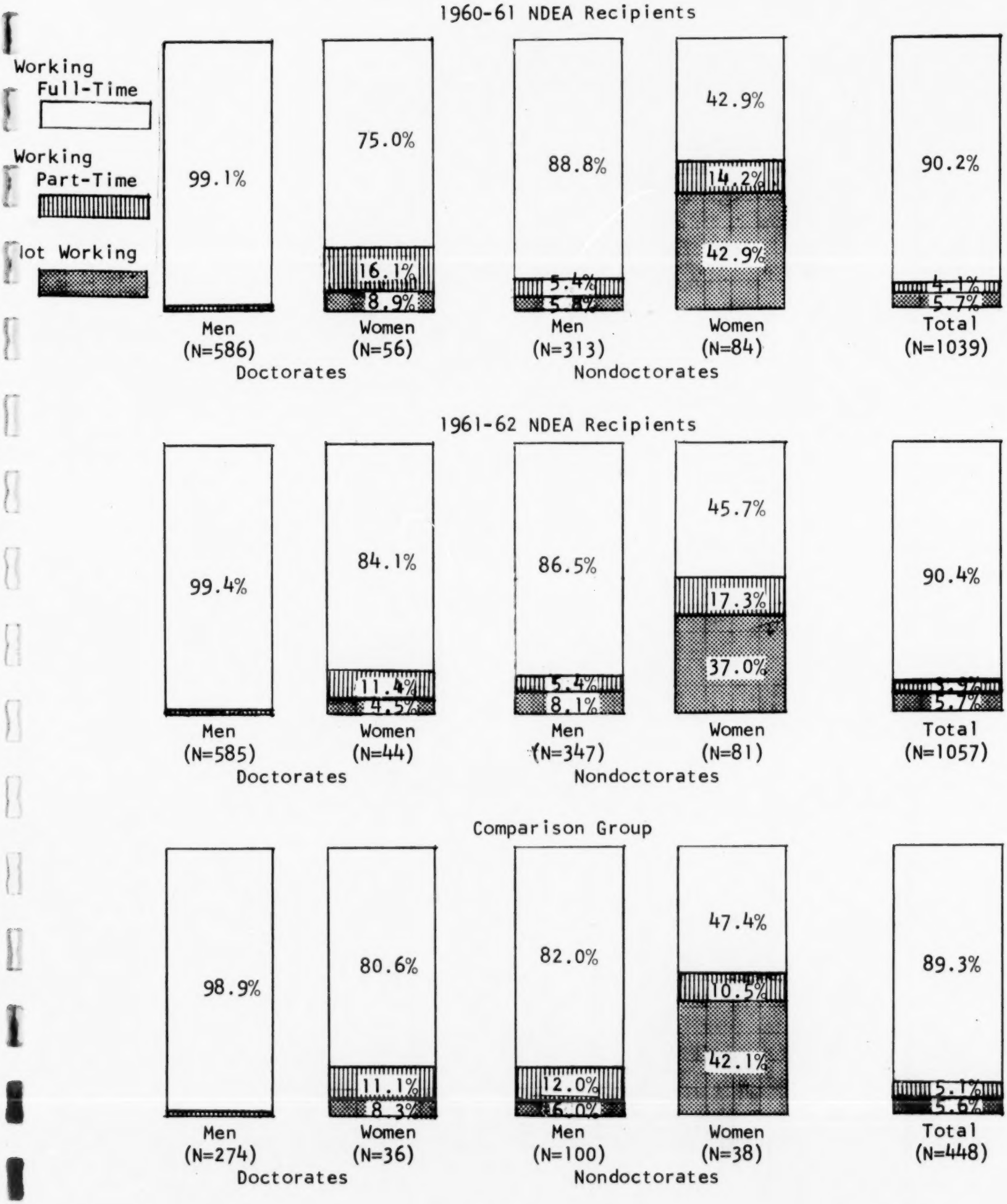

FIGURE IV-1

CURRENT EMPLOYMENT STATUS BY PH. D. STATUS AND SEX: NDEA RECIPIENTS AND COMPARISON GROUP

TABLE IV-1

TYPE OF CURRENT EMPLOYER BY Ph. D. STATUS AND SEX: NDEA RECIPIENTS AND COMPARISON GROUP
(In percentages)

Employer	Ph. D.			No Ph. D.			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
A. 1960-61 NDEA Fellows									
College or university	76.8	91.7	78.0	43.0	47.9	43.7	65.4	69.8	65.9
Junior college or technical institute	0.2	2.1	0.3	2.4	4.2	2.6	0.9	3.1	1.1
High school	-	-	-	4.8	8.3	5.3	1.6	4.2	1.9
Elementary school	-	-	-	0.3	6.2	1.2	0.1	3.1	0.4
Industry	11.6	-	10.7	27.3	8.3	24.6	16.9	4.2	15.6
Federal government	5.9	2.1	5.6	9.6	6.2	9.1	7.1	4.2	6.8
State or local government	0.5	2.1	0.6	2.4	4.2	2.6	1.1	3.1	1.3
Nonprofit organization	3.3	2.1	3.2	3.8	4.2	3.8	3.4	3.1	3.4
Other	1.7	-	1.6	6.5	10.4	7.0	3.3	5.2	3.5
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(578)	(48)	(626)	(293)	(48)	(341)	(871)	(96)	(967)

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TABLE IV-1--Continued

Employer	Ph. D.			No Ph. D.			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
B. 1961-62 NDEA Fellows									
College or university	73.0	82.9	73.6	48.9	49.0	48.9	64.5	64.4	64.5
Junior college or technical institute	0.5	-	0.5	3.2	8.2	3.9	1.5	4.4	1.7
High school	0.2	-	0.2	5.1	10.2	5.8	1.9	5.6	2.3
Elementary school	-	4.9	0.3	0.6	4.1	1.1	0.2	4.4	0.6
Industry	15.0	7.3	14.5	24.6	8.2	22.4	18.4	7.8	17.4
Federal government	6.4	-	6.0	7.3	4.1	6.9	6.8	2.2	6.3
State or local government	0.7	-	0.6	3.5	2.0	3.3	1.7	1.1	1.6
Nonprofit organization	2.4	4.9	2.6	2.6	8.2	3.3	2.5	6.7	2.9
Other	1.7	-	1.6	4.2	6.1	4.4	2.6	3.3	2.7
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(574)	(41)	(615)	(313)	(49)	(362)	(887)	(90)	(977)
C. Comparison Group									
College or university	80.2	71.9	79.3	50.5	54.5	51.3	72.7	64.8	71.7
Junior college or technical institute	1.1	6.2	1.7	8.8	4.5	8.0	3.1	5.6	3.4
High school	-	-	-	2.2	13.6	4.4	0.6	5.6	1.2
Elementary school	-	-	-	1.1	-	0.9	0.3	-	0.2
Industry	7.8	-	7.0	20.9	9.1	18.6	11.1	3.7	10.2
Federal government	5.6	6.2	5.7	5.5	-	4.4	5.6	3.7	5.3
State or local government	0.7	6.2	1.3	4.4	-	3.5	1.7	3.7	1.9
Nonprofit organization	3.0	3.1	3.0	6.6	9.1	7.1	3.9	5.6	4.1
Other	1.5	6.2	2.0	-	9.1	1.8	1.1	7.4	1.9
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(268)	(32)	(300)	(91)	(22)	(113)	(359)	(54)	(413)

TABLE IV-2

PROPORTION CURRENTLY IN ACADEMIC EMPLOYMENT BY DOCTORAL STATUS AND STUDY FIELD FOR MEN AND BY DOCTORAL STATUS FOR WOMEN[a]

Study Fields	1960-61 NDEA Men		1961-62 NDEA Men		Comparison Group Men	
	Ph. D.	No Ph. D.	Ph. D.	No.Ph. D.	Ph. D.	No Ph. D.
Education	81.4	[5]	78.8	[8]	[3]	[2]
(N)	(43)	(8)	(52)	(12)	(7)	(2)
Humanities	98.1	69.7	97.6	77.9	94.7	68.2
(N)	(106)	(99)	(84)	(104)	(38)	(22)
Business and Professions	[16]	[5]	[17]	[0]	[1]	[-]
(N)	(18)	(9)	(19)	(5)	(1)	(0)
Social Sciences	87.3	48.4	85.9	56.0	96.5	77.8
(N)	(126)	(95)	(128)	(91)	(57)	(36)
Psychology	[8]	[0]	[16]	[1]	87.5	[3]
(N)	(11)	(2)	(19)	(4)	(32)	(6)
Biological Sciences	75.7	[7]	63.0	52.0	66.7	[3]
(N)	(66)	(16)	(81)	(25)	(45)	(8)
Physical Sciences	62.9	25.5	58.8	30.5	70.3	28.6
(N)	(132)	(47)	(114)	(59)	(64)	(21)
Engineering	40.2	8.3	38.8	10.9	63.0	[0]
(N)	(82)	(36)	(85)	(46)	(27)	(5)
Total % for Men	75.2	47.1	71.8	51.3	79.3	57.0
(N)	(584)	(312)	(581)	(345)	(271)	(100)
Total % for Women	78.6	38.6	79.5	40.7	69.4	42.1
(N)	(56)	(83)	(44)	(81)	(36)	(38)

[a]Because most study-field categories for women contained less than 20 cases, this tabulation on academic employment is given only for men.

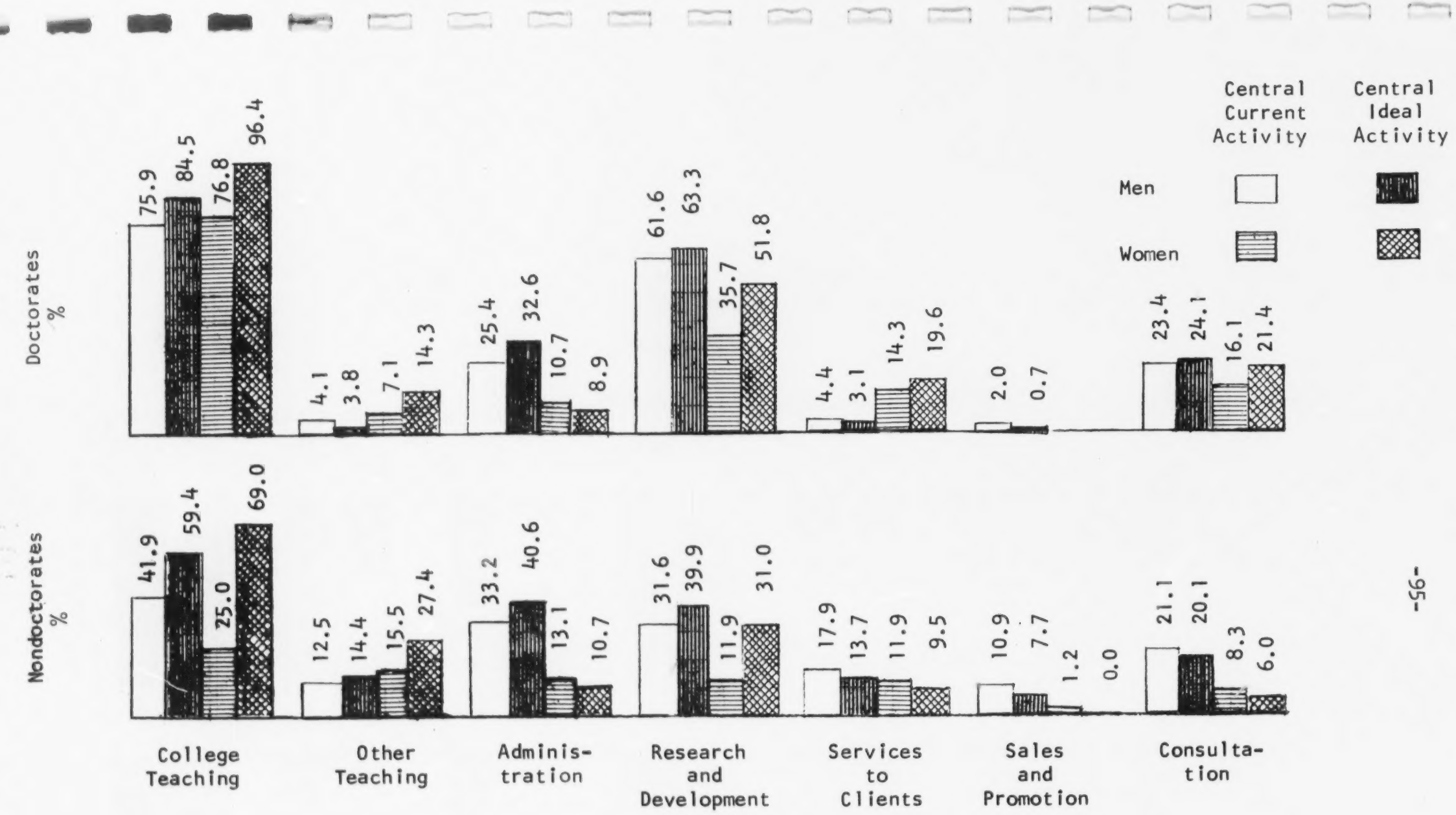

FIGURE IV-2a

ACTIVITIES CENTRAL TO CURRENT AND IDEAL EMPLOYMENT
BY SEX AND DOCTORAL STATUS: 1960-61 NDEA FELLOWS
(In percentages)

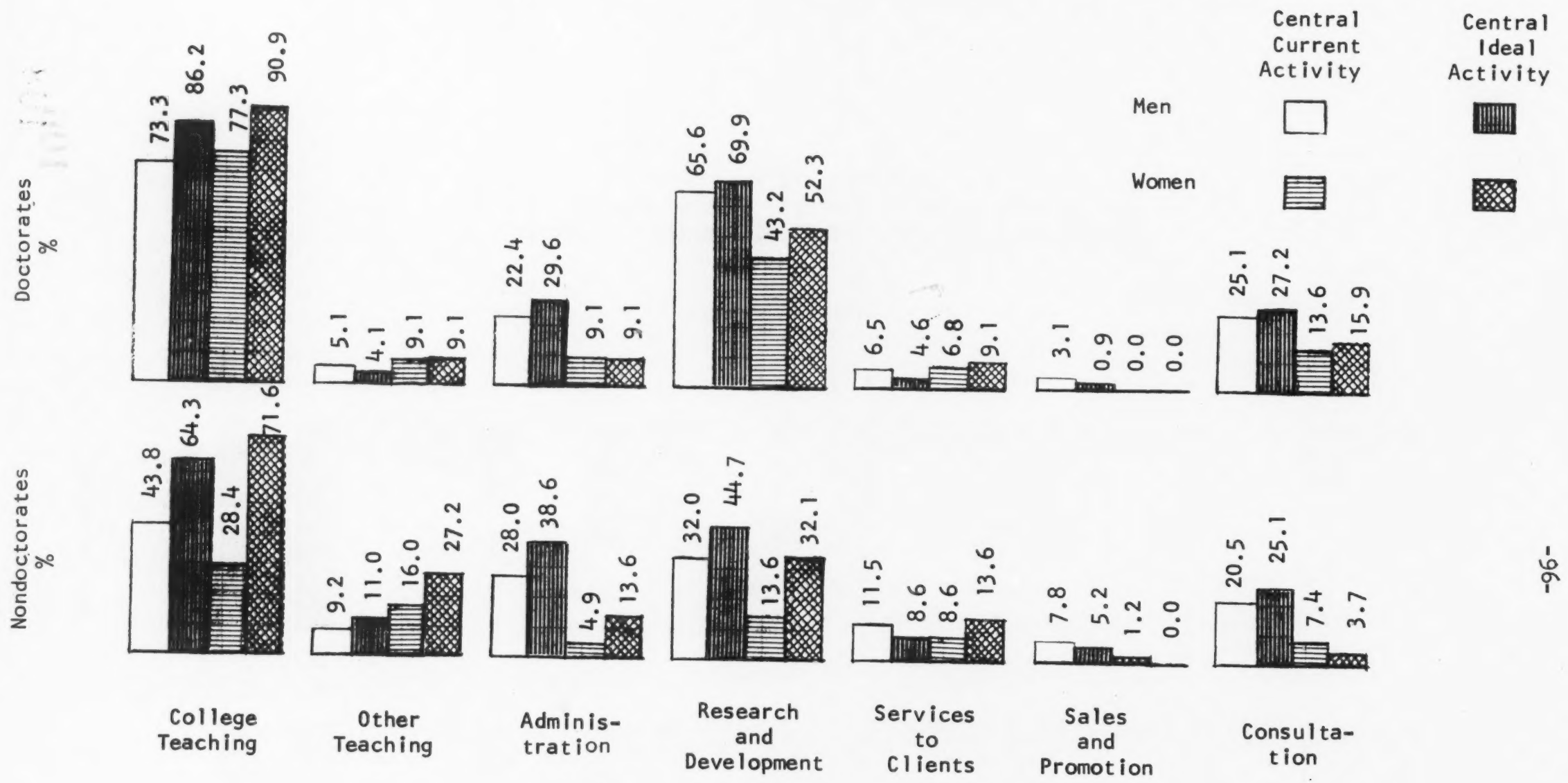

FIGURE IV-2b

ACTIVITIES CENTRAL TO CURRENT AND IDEAL EMPLOYMENT
BY SEX AND DOCTORAL STATUS: 1961-62 NDEA FELLOWS
(In percentages)

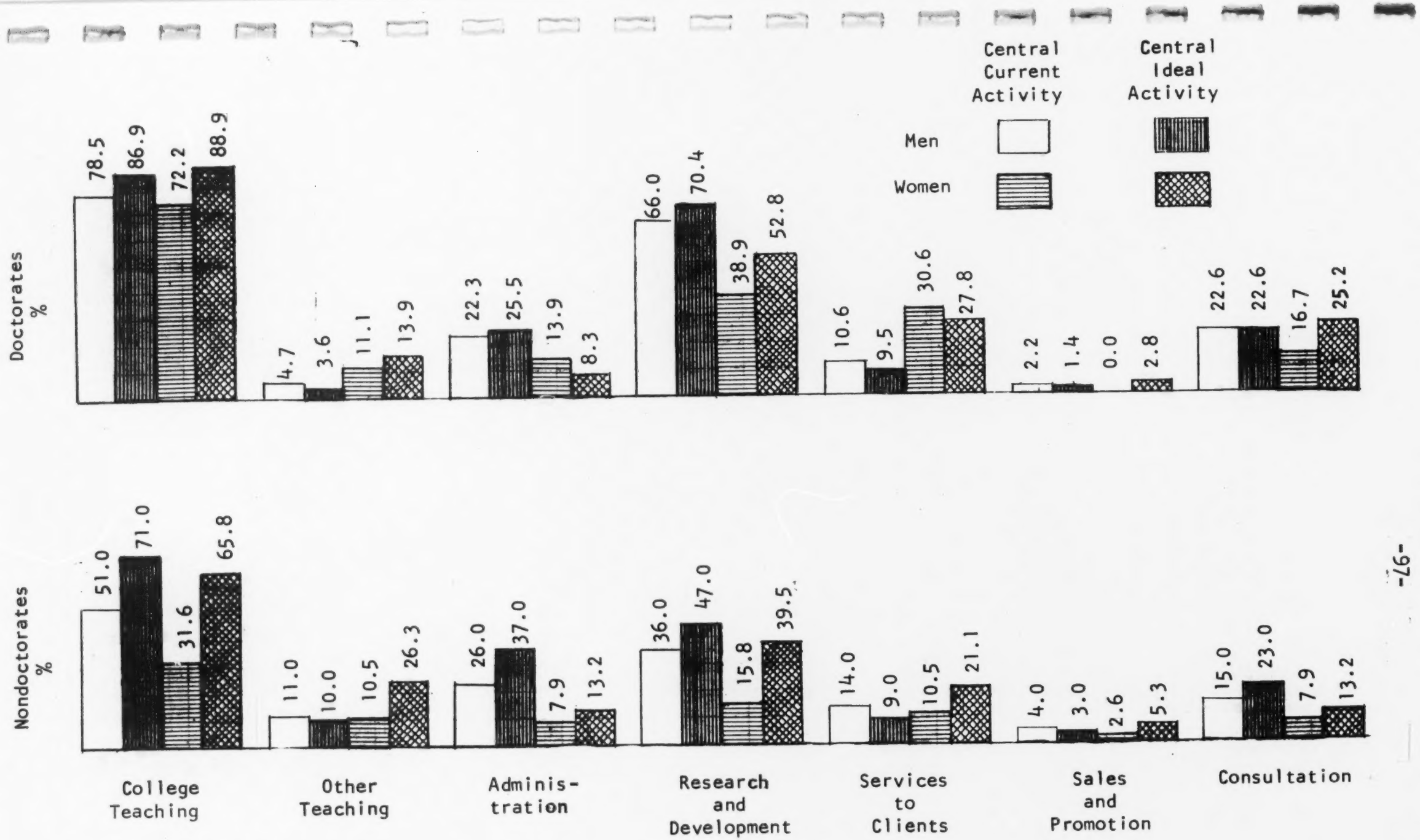

FIGURE IV-2c

ACTIVITIES CENTRAL TO CURRENT AND IDEAL EMPLOYMENT
BY SEX AND DOCTORAL STATUS: COMPARISON GROUP
(In percentages)

TABLE IV-3

IDEAL LONG-RUN CAREER EMPLOYER BY Ph. D. STATUS
OF NDEA RECIPIENTS AND COMPARISON GROUP
(In percentages)

Ideal Employer	Ph. D.			No Ph. D.		
	Men	Women	Total	Men	Women	Total
A. 1960-61 NDEA						
College or university	79.3	85.7	79.8	50.3	61.7	52.7
Junior college or technical institute	0.2	3.6	0.5	1.6	3.7	2.0
Elementary or secondary school	0.2	-	0.2	2.6	8.6	3.8
Industry	7.1	-	6.4	20.1	4.9	17.0
Federal government	1.6	1.8	1.6	5.5	2.5	4.9
State or local government	0.3	-	0.4	0.3	1.2	0.5
Nonprofit organization	1.2	3.6	1.4	2.3	3.7	2.6
Other	2.2	-	2.0	6.8	7.4	6.9
Do not know or undecided	7.9	5.4	7.7	10.4	6.2	9.5
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(579)	(56)	(635)	(308)	(81)	(389)
B. 1961-62 NDEA						
College or university	76.9	81.8	77.3	57.0	68.8	59.2
Junior college or technical institute	0.2	-	0.2	2.0	1.3	1.9
Elementary or secondary school	0.2	4.5	0.5	1.5	6.5	2.4
Industry	10.2	2.3	9.6	19.9	1.3	16.5
Federal government	2.2	-	2.1	3.5	1.3	3.1
State or local government	-	-	-	1.8	1.3	1.7
Nonprofit organization	0.9	2.3	1.0	1.2	6.5	2.1
Other	1.7	2.3	1.8	5.0	1.3	4.3
Do not know or undecided	7.7	6.8	7.7	8.2	11.7	8.8
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(581)	(44)	(625)	(342)	(77)	(419)

TABLE IV-3--Continued

Ideal Employer	Ph. D.			No Ph. D.		
	Men	Women	Total	Men	Women	Total
C. Comparison Group						
College or university	79.2	80.6	79.4	62.0	63.2	62.3
Junior college or technical institute	0.4	-	0.3	1.0	-	0.7
Elementary or secondary school	0.4	-	0.3	2.0	5.3	2.9
Industry	6.2	-	5.5	20.0	5.3	15.9
Federal government	3.3	2.8	3.2	3.0	-	2.2
State or local government	-	-	-	1.0	-	0.7
Nonprofit organization	1.1	5.6	1.6	3.0	7.9	4.3
Other	2.9	8.3	3.5	1.0	7.9	2.9
Do not know or undecided	6.6	2.8	6.1	7.0	10.5	8.0
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(274)	(36)	(310)	(100)	(38)	(138)

TABLE IV-4

LIKELIHOOD OF TEACHING IN COLLEGE BY Ph. D. STATUS:
NDEA RECIPIENTS AND COMPARISON GROUP
(In percentages)

Likelihood of Teaching	Ph. D.			No Ph. D.		
	Men	Women	Total	Men	Women	Total
A. 1960-61 NDEA						
90 or 100%	70.7	80.0	71.5	40.5	45.7	41.6
70 or 80%	12.4	10.9	12.2	12.8	12.3	12.7
50 or 60%	7.7	7.3	7.6	15.5	16.0	15.6
30 or 40%	4.0	1.8	3.8	11.2	13.6	11.7
20% or less	5.2	-	4.8	20.1	12.3	18.4
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(574)	(55)	(629)	(304)	(81)	(385)
B. 1961-62 NDEA						
90 or 100%	68.8	72.1	69.0	49.7	46.0	49.0
70 or 80%	11.2	14.0	11.4	10.8	19.7	12.5
50 or 60%	8.9	7.0	8.8	11.4	11.8	11.5
30 or 40%	5.2	4.7	5.2	6.9	10.5	7.6
20% or less	5.9	2.3	5.7	21.1	11.8	19.4
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(573)	(43)	(616)	(332)	(76)	(408)
C. Comparison Group						
90 or 100%	70.5	58.3	69.0	50.5	36.8	46.7
70 or 80%	13.7	16.7	14.0	5.1	7.9	5.8
50 or 60%	5.2	16.7	6.5	19.2	26.3	21.2
30 or 40%	4.8	5.6	4.9	6.1	7.9	6.6
20% or less	5.9	2.8	5.5	19.2	21.1	19.7
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(271)	(36)	(307)	(99)	(38)	(137)

TABLE IV-5

LIKELIHOOD OF TEACHING IN COLLEGE BY Ph. D. STATUS AND STUDY FIELD:
NDEA AND COMPARISON GROUP RESPONDENTS
(In percentages)

	Education	Humanities	Business and Professions	Social Sciences	Psychology	Biological Sciences	Physical Sciences	Engineering	Total
A. 1960-61 NDEA									
Doctorates									
90 or 100%	80.8	86.1	[13]	81.9	[11]	60.8	61.9	52.0	71.5
70 or 80%	14.9	7.4	[5]	13.8	[1]	11.4	11.9	14.7	12.2
50 or 60%	2.1	4.9	-	1.4	[2]	15.2	13.4	9.3	7.6
30 or 40%	-	0.8	-	2.2	-	6.3	6.7	8.0	3.8
20% or less	2.1	0.8	[1]	0.7	[1]	6.3	6.0	16.0	4.8
Total %	100.0	100.0	-	100.0	-	100.0	100.0	100.0	100.0
(N)	(47)	(122)	(19)	(138)	(15)	(79)	(134)	(75)	(629)
Nondoctorates									
90 or 100%	[3]	59.0	[4]	44.4	[1]	15.0	23.1	10.0	41.6
70 or 80%	[5]	11.5	[2]	13.7	-	15.0	13.5	-	12.7
50 or 60%	[3]	10.1	[1]	18.8	-	30.0	13.5	23.3	15.6
30 or 40%	[3]	6.5	[1]	9.4	[1]	25.0	21.2	13.3	11.7
20% or less	[1]	12.9	[1]	13.7	[1]	15.0	28.8	53.3	18.4
Total %	-	100.0	-	100.0	-	100.0	100.0	100.0	100.0
(N)	(15)	(139)	(9)	(117)	(3)	(20)	(52)	(30)	(385)

TABLE IV-5--Continued

		Education	Humanities	Business and Professions	Social Sciences	Psychology	Biological Sciences	Physical Sciences	Engineering	Total
B. 1961-62 NDEA										
Doctorates										
90 or 100%		82.1	87.8	[16]	86.1	81.8	50.0	55.6	40.0	69.0
70 or 80%		10.7	7.1	[1]	9.5	18.2	15.9	12.0	13.8	11.4
50 or 60%		3.6	4.1	[1]	1.5	-	15.9	9.4	25.0	8.8
30 or 40%		1.8	-	-	1.5	-	10.2	8.5	12.5	5.2
20% or less		1.8	1.0	-	1.5	-	8.0	14.5	8.8	5.7
Total	%	100.0	100.0	-	100.0	100.0	100.0	100.0	100.0	100.0
	(N)	(56)	(98)	(18)	(137)	(22)	(88)	(117)	(80)	(616)
Nondoctorates										
90 or 100%		[8]	70.7	[2]	52.2	-	33.3	26.9	13.5	49.0
70 or 80%		[2]	13.6	-	14.4	-	13.3	10.4	8.1	12.5
50 or 60%		[1]	5.7	-	10.8	[3]	13.3	20.9	13.5	11.5
30 or 40%		-	4.3	-	7.2	-	10.0	13.4	13.5	7.6
20% or less		[2]	5.7	[3]	15.3	[2]	30.0	28.4	51.4	19.4
Total	%	-	100.0	-	100.0	-	100.0	100.0	100.0	100.0
	(N)	(13)	(140)	(5)	(111)	(5)	(30)	(67)	(37)	(408)

TABLE IV-5--Continued

	Education	Humanities	Business and Professions	Social Sciences	Psychology	Biological Sciences	Physical Sciences	Engineering	Total
C. Comparison Group									
Doctorates									
90 or 100%	[3]	83.3	-	82.5	75.0	58.5	64.2	48.1	69.0
70 or 80%	[3]	12.5	-	12.7	12.5	13.2	16.4	11.1	14.0
50 or 60%	[1]	4.2	-	1.6	2.5	13.2	7.5	11.1	6.5
30 or 40%	[1]	-	-	3.2	7.5	5.7	4.5	11.1	4.9
20% or less	-	-	[1]	-	2.5	9.4	7.5	18.5	5.5
Total %	-	100.0	-	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(8)	(48)	(1)	(63)	(40)	(53)	(67)	(27)	(307)
Nondoctorates									
90 or 100%	[3]	48.8	-	62.2	[2]	[2]	36.0	-	46.7
70 or 80%	-	4.9	-	6.7	[1]	-	8.0	-	5.8
50 or 60%	-	29.3	-	8.9	[3]	-	36.0	[1]	21.2
30 or 40%	-	7.3	-	6.7	[1]	-	4.0	[1]	6.6
20% or less	-	9.8	-	15.6	[3]	[7]	16.0	[2]	19.7
Total %	-	100.0	-	100.0	-	-	100.0	-	100.0
(N)	(3)	(41)	-	(45)	(10)	(9)	(25)	(4)	(137)

TABLE IV-6

FACTORS INFLUENCING ENTRY INTO COLLEGE TEACHING,
BY SEX AND Ph.D. STATUS: NDEA RECIPIENTS ONLY
(In percentages)

Importance of Different Factors	Ph. D.		No Ph. D.	
	Men	Women	Men	Women
A. Flexibility and freedom in schedule				
Very important	59.5	55.3	55.0	66.9
Somewhat important	31.0	34.0	34.3	29.0
Not important	9.4	10.6	10.7	4.0
Total %	100.0	100.0	100.0	100.0
(N)	(1028)	(94)	(460)	(124)
B. Economic security offered by teaching				
Very important	6.9	6.5	7.3	8.3
Somewhat important	44.0	47.3	42.4	45.8
Not important	49.1	46.2	50.2	45.8
Total %	100.0	100.0	100.0	100.0
(N)	(1015)	(93)	(450)	(120)
C. Prestige offered by teaching				
Very important	7.1	8.5	7.5	12.3
Somewhat important	51.7	38.3	46.0	37.7
Not important	41.2	53.2	46.5	50.0
Total %	100.0	100.0	100.0	100.0
(N)	(1029)	(94)	(456)	(122)
D. An obligation because of financial support in graduate school				
Very important	3.5	11.7	4.6	9.9
Somewhat important	26.8	39.4	24.9	38.0
Not important	69.7	48.9	70.5	52.1
Total %	100.0	100.0	100.0	100.0
(N)	(1027)	(94)	(457)	(121)

TABLE IV-6--(Continued)

Importance of Different Factors	Ph. D.		No Ph. D.	
	Men	Women	Men	Women
E. Intellectual stimulation offered by teaching				
Very important	72.2	72.3	72.7	81.5
Somewhat important	25.3	26.6	25.4	17.7
Not important	2.5	1.1	1.9	0.8
Total %	100.0	100.0	100.0	100.0
(N)	(1035)	(94)	(465)	(124)
F. Opportunity from teaching to keep up to date in one's field				
Very important	49.4	47.9	41.6	50.4
Somewhat important	42.2	44.7	46.6	38.8
Not important	8.4	7.4	11.8	10.7
Total %	100.0	100.0	100.0	100.0
(N)	(1025)	(94)	(459)	(121)
G. Own greatest ability lies in teaching				
Very important	43.7	54.8	50.1	55.3
Somewhat important	39.7	30.1	36.8	29.3
Not important	16.5	15.1	13.1	15.4
Total %	100.0	100.0	100.0	100.0
(N)	(1022)	(93)	(459)	(123)
H. Teaching as the best way to work in one's field				
Very important	45.6	63.8	47.2	61.0
Somewhat important	38.1	19.1	33.2	26.0
Not important	16.3	17.0	19.6	13.0
Total %	100.0	100.0	100.0	100.0
(N)	(1026)	(94)	(455)	(123)
I. Opportunity provided for research and writing				
Very important	44.9	22.6	26.2	24.6
Somewhat important	42.9	50.5	42.6	32.0
Not important	12.2	26.9	31.2	43.4
Total %	100.0	100.0	100.0	100.0
(N)	(1024)	(93)	(458)	(122)

TABLE IV-7

SIMILARITY OF CURRENT EMPLOYMENT FIELD AND DOCTORAL FIELD BY SEX AND Ph.D. STATUS: NDEA AND COMPARISON GROUPS
(In percentages)

Similarity of Fields	Ph. D.		No Ph. D.	
	Men	Women	Men	Women
A. 1960-61 NDEA				
Employed in doctoral field or in the same major area	95.8	97.9	76.2	64.6
Employed in another academic field	1.6	-	4.5	18.7
Employed in a nonacademic field	2.6	2.1	19.3	16.7
Total %	100.0	100.0	100.0	100.0
(N)	(573)	(47)	(290)	(48)
B. 1961-62 NDEA				
Employed in doctoral field or in the same major area	95.8	92.5	83.6	80.0
Employed in another academic field	1.6	7.5	3.5	4.0
Employed in a nonacademic field	2.6	-	12.9	16.0
Total %	100.0	100.0	100.0	100.0
(N)	(570)	(40)	(311)	(50)
C. Comparison Group				
Employed in doctoral field or in the same major area	96.6	96.6	86.5	72.7
Employed in another academic field	2.7	-	2.2	9.1
Employed in a nonacademic field	0.8	3.4	11.2	18.2
Total %	100.0	100.0	100.0	100.0
(N)	(261)	(29)	(89)	(22)

TABLE IV-8

FACTORS CONTRIBUTING TO ACADEMIC EMPLOYMENT:[a] NDEA FELLOWS EMPLOYED BOTH FULL-TIME AND PART-TIME (ZERO-ORDER CORRELATIONS[b] AND RESULTS OF STEPWISE MULTIPLE REGRESSION ANALYSIS)

Variables[c]	1	2	3	4	5	6	7
1. Ideal central activity: College teaching	-						
2. Ideal employer: Academic	.32	-					
3. Ideal central activity: Administrative work	-.33	-.14	-				
4. Importance of Ph. D. for career success	.53	.27	-.24	-			
5. Natural Sciences	-.08	-.10	-	.15	-		
6. Economic Security	.33	.19	-.16	.22	-.17	-	
7. Academic Employment	.58	.40	-.33	.44	-.18	.31	-

	Percentage Explained in Variance[d]	Coefficient	β Weight
(Constant)		(0.949)	
1. Ideal central activity: College teaching	33.8	0.347	0.317
2. Ideal employer: Academic	5.3	0.244	0.194
3. Career goal: Administrative work	2.1	-0.112	-0.115
4. Importance of Ph. D. for career success	2.1	0.075	0.162
5. Natural Sciences	1.3	-0.153	-0.158
6. Economic security of academic employment	0.6	0.073	0.078

a. Academic employment includes teaching at any level.
b. $r = <.05$.
c. Sixty-nine variables were included; however, only those variables which entered the regression equation with an F value above .05 and which explained at least one per cent of the variance in academic employment were included in the table.
d. Increase in r^2.

TABLE IV-9

FACTORS CONTRIBUTING TO ACADEMIC EMPLOYMENT:[a] COMPARISON GROUP RESPONDENTS EMPLOYED BOTH FULL-TIME AND PART-TIME (ZERO-ORDER CORRELATIONS[b] AND RESULTS OF STEPWISE MULTIPLE REGRESSION ANALYSIS)

Variables[c]	1	2	3	4	5	6	7	8	9
1. Ideal central career activity: College teaching	-								
2. Ideal employer: Academic	.44	-							
3. Education	-	-.09	-						
4. Natural Science	-.25	-.16	-.10	-					
5. Ideal central career activity: Consultation	-.06	-.15	.07	.09	-				
6. Opportunity for research and writing	.53	.25	.06	-.20	-	-			
7. Pacific Regions	-	-	-	-	-	.06	-		
8. Economic security of academic employment	.30	.17	.06	-.18	-	.30	-	-	
9. Academic employment	.63	.44	-.12	-.31	-.20	.43	-.07	.30	-

a. Academic employment includes teaching at any level.
b. $r = < .05$.
c. Seventy variables were included; however, only those variables which entered the regression equation with an F value above .05 and which explained at least one per cent of the variance in academic employment were included in the table.

TABLE IV-9--Continued

	Percentage Explained in Variance[d]	Coefficient	β Weight
(Constant)		(1.880)	
1. Ideal central career activity: College teaching	39.8	0.455	0.385
2. Ideal employer: Academic	3.4	0.171	0.135
3. Education	2.0	-0.629	-0.133
4. Natural Science	2.0	-0.109	-0.119
5. Ideal central career activity: Consultation	1.4	-0.123	-0.111
6. Opportunity for research and writing	1.2	0.135	0.129
7. Pacific Regions	0.7	-0.123	-0.102
8. Economic security of academic employment	0.7	0.092	0.100

d. Increase in r^2.

TABLE IV-10

INCOME BY Ph.D. STATUS AND SEX OF FULL-TIME EMPLOYED NDEA AND COMPARISON GROUP RESPONDENTS
(In percentages)

Income	Ph. D.		No Ph. D.	
	Men	Women	Men	Women
A. 1960-61 NDEA				
Less than $5,000	1.2	-	2.2	22.2
$5,000 - $7,499	0.7	2.4	5.1	8.3
$7,500 - $9,999	10.4	28.6	31.1	58.3
$10,000 - $14,999	53.4	57.1	43.2	8.3
$15,000 - $19,999	27.7	11.9	15.0	2.8
$20,000 - $24,999	5.2	-	1.8	-
$25,000 and over	1.4	-	1.5	-
Total %	100.0	100.0	100.0	100.0
(N)	(577)	(42)	(273)	(36)
Median income	$13,530	$11,666	$11,334	$8,333
B. 1961-62 NDEA				
Less than $5,000	1.4	5.4	3.0	13.5
$5,000 - $7,499	2.4	8.1	7.4	29.7
$7,500 - $9,999	9.7	35.1	31.6	40.5
$10,000 - $14,999	56.2	48.6	44.8	16.2
$15,000 - $19,999	26.8	2.7	11.8	-
$20,000 - $24,999	2.6	-	0.7	-
$25,000 and over	0.9	-	0.7	-
Total %	100.0	100.0	100.0	100.0
(N)	(575)	(37)	(297)	(37)
Median income	$13,243	$10,138	$10,883	$7,916
C. Comparison Group				
Less than $5,000	1.8	3.4	1.2	[1]
$5,000 - $7,499	1.1	-	4.9	[5]
$7,500 - $9,999	11.1	27.6	35.8	[8]
$10,000 - $14,999	54.2	58.6	44.4	[4]
$15,000 - $19,999	25.1	6.9	11.1	-
$20,000 - $24,999	4.4	3.4	1.2	-
$25,000 and over	2.2	-	1.2	-
Total %	100.0	100.0	100.0	-
(N)	(271)	(29)	(81)	(18)
Median income	$13,316	$11,617	$10,902	-[a]

[a]Too few cases for calculation of reliable median.

V. NDEA FELLOWS WITHOUT THE DOCTORATE

At the time of the study, two-fifths of the total NDEA group did not yet have the doctorate, although nearly half of this group still intended to obtain the doctorate from the same program in which they had initially enrolled. This group will be referred to as the ABD[1] group insofar as the majority of the respondents in this group had already completed most of their doctoral requirements: e.g., nearly three-fourths had had their dissertation topic approved, and half had already finished collecting data for the dissertation (Figure V-1).

The remainder of the nondoctoral group, which comprised one-fifth of the total group of NDEA respondents for each year, had either decided to completely discontinue their doctoral studies or had serious reservations about pursuing graduate training further. This group will be referred to as the Discontinued group.[2]

Since the factors contributing to doctoral completion were discussed in Section III, the discussion here will be limited to the differences between the ABD and Discontinued students to differentiate, wherever possible, between those factors which merely delay doctoral completion and those which result in withdrawal from graduate school.

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[1]ABD: "All but dissertation," i.e., one who still intends to get the doctorate. This is not to be confused with one who has ceased graduate study just short of the doctorate, a meaning which is sometimes assigned to this term.

[2]Notably more than half of the Discontinued group consisted of NDEA Fellows who had resigned from the program before completing Fellowship tenure, while only 18 per cent of the ABD group consisted of NDEA Fellows who had withdrawn from the program.

Table V-1 presents the sex, age, and marital status distribution of the Fellows in the ABD and in the Discontinued groups. The proportion of women students in the Discontinued group was significantly larger than that in the ABD group (chi square = 4.77, $p < .05$).

There were no substantial age differences between men and women either within or between the ABD group and the Discontinued group.

When the marital status of the Fellows in the ABD group and in the Discontinued group was compared for the first year of graduate enrollment, there were significantly more single Fellows in the Discontinued group than in the ABD group (chi square = 4.24, $p < .05$). There were also proportionately more single women than single men in both the ABD group (chi square = 5.59, $p < .02$) and even more significantly in the Discontinued group (chi square = 17.40, $p < .001$). The proportion of students who got married during the first three years of predoctoral study was larger among women than among men. In addition, slightly more of the women in the Discontinued group than in the ABD group got married between the first and third years of predoctoral studies. Other investigators have already shown the negative effect of marriage on the academic status of women graduate students.[3] The larger proportion of women in the Discontinued group than in the ABD group might be partially explained by the higher rates of marriage among women students than among men. In fact, nearly one-third of the women in the Discontinued group stated that they withdrew from graduate school to get married, while fewer than 6 per cent of the men gave this as a reason for withdrawal (Table V-2).

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[3]Astin, op. cit.; Sharp, 1970, op. cit.; and Eldon L. Wegner, "Some Factors in Obtaining Post Graduate Education," Sociology of Education, 1969, 42: 154-169.

Tables V-3 to V-6 present the socioeconomic differences between Fellows in the ABD and in the Discontinued group, expressed both in terms of percentages indicating frequency distributions within each group, and as proportions of the total NDEA group.

As was discussed earlier, socioeconomic factors were not significant contributors to doctoral completion in the NDEA group as a whole. Nor were major differences of this sort found between the students in the ABD and Discontinued groups. However, there were some slight indications that the Fellows in the Discontinued group might have come from a slightly higher socioeconomic background than the Fellows in the ABD group. For instance, the median parental income reported by those in the Discontinued group was about $350 higher than that reported by members of the ABD group. This difference became more apparent when comparisons were made between the proportions of all Fellows with parental incomes above $20,000: 58.1 per cent of this group were found among the Discontinued group, while only 23.8 per cent of the group was made up of the Fellows in the ABD group. The remainder had completed their doctoral degrees. Similarly, with the exception of those who had fathers who were teachers or educators, proportionately more of the students in the Discontinued group than in the ABD group had fathers in highly ranked occupations such as other professionals, proprietors and business officials.

As discussed above in Section III, proportionately fewer Fellows in the Humanities and in the Social Sciences than in other fields had completed the doctorate. A comparison of the study field distribution of the students in the ABD and in the Discontinued groups indicated that while majoring in the Humanities and in the Social Sciences was more apt to result in delayed doctoral completion than in withdrawal from graduate

schools, students in the Physical Sciences and in Engineering were more likely to withdraw altogether than to continue to progress toward the doctorate at a slow pace (Table V-7).

Although the undergraduate grade letter averages of the Discontinued students were slightly lower than those of the ABD students, the differences were not significant (Table V-8).[4] There were differences in the full-time schedules of the ABD and Discontinued students (Figure V-2). While they were in school, more of the Fellows in the Discontinued group than the Fellows in the ABD group had full-time schedules both in terms of general coursework and in terms of the dissertation (although the number of Fellows involved in the last comparison is small for both groups). This lower rate of full-time work schedule is partially responsible for the slow progress of doctoral candidates in the ABD group. Moreover, fewer than one-fifth of the ABD group students were working full-time on doctoral requirements at the time of the study. Consequently, the expectations of most of the ABD students that they would receive the doctorate by the end of 1970 might be rather optimistic (Table V-9).

When asked about the reasons for discontinuing their doctoral studies, half of the students in the Discontinued group indicated that dissatisfaction with the doctoral program was the major cause of withdrawal; nearly as many mentioned a change in career goals, and the realization that the doctorate was not necessary for the fulfillment of these goals (Table V-2). More women than men stated that they withdrew in order to get married, while more men than women stated that they were unable to continue because of financial reasons.

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[4]GRE scores are not included in the analysis due to the small number of respondents who supplied this information.

It was rather difficult to assess the reasons for the dissatisfaction with their doctoral programs for those in the Discontinued group. Consistently fewer of the students in the Discontinued group than in the ABD group rated various aspects of their doctoral program as "adequate" (Figure V-3), or indicated satisfaction with the amount of emphasis placed by the university on certain components of the doctoral program (Figure V-4), but there was no indication of any other specific complaint; rather, they seemed to feel a generalized dissatisfaction.

Table V-10 presents the differences in sources and types of difficulty experienced by the doctorates and the Fellows in the ABD and in the Discontinued groups. An overwhelming majority of the ABD students who were working on the dissertation at the time of the survey complained of the difficulty of writing the dissertation off-campus while employed full-time. This had also been a major source of difficulty for the doctorates, but to a lesser degree than it was for the ABD students. It is reasonable to assume that the ABD group completed fewer of their doctoral requirements during the Fellowship tenure than did the doctorates--probably due to changes in academic interests (Table V-7). Once the financial support from the NDEA grant was cut off, they found themselves facing serious financial problems, often arising from family obligations, and sought part-time or full-time employment while still working on the dissertation. The major source of difficulty for the Discontinued group appears to be motivational; they seem to lose interest in their predoctoral studies and simply withdraw from school.

Table V-11 presents the current employment data for the students in the ABD and in the Discontinued groups. Significantly more of the Fellows in the ABD group than in the Discontinued group were currently

holding academic positions (chi square = 189.3, $p < .001$). Academic employment was more common in both groups among those who had majored in the Humanities and in the Social Sciences than among others (Table V-12). Over 90 per cent of the ABD Fellows were employed in their doctoral fields, while one-fourth of the Discontinued students were employed in an area completely unrelated to their predoctoral studies (Table V-13).

Finally, in both groups, 71 per cent of the Fellows had a master's degree and substantially more of the master's degree holders in the ABD group than in the Discontinued group were in academic employment. More master's degree holders in the ABD group than in the Discontinued group, and more women than men in both groups, hoped for academic employment in the near future (chi square = 154.2, $p < .001$) (Table V-14).

In summary, women grantees were more likely than men grantees to withdraw from graduate school, particularly if they got married during their predoctoral studies. Students whose fathers were in highly ranked occupations (with the exception of those whose fathers were educators or teachers), and whose annual parental income exceeded $20,000 appeared to be more likely to withdraw from graduate school completely than to delay completion of the doctorate. Similarly, there was a tendency for the students in the Natural Sciences to complete the doctorate either in a relatively short period of time or withdraw from doctoral studies, while the students in the Humanities and in the Social Sciences tended to continue to work toward doctoral completion, while employed full-time in academic positions.

The analysis of current employment among the Fellows clearly indicates that the ABD group is a productive group in terms of the goals of the NDEA program; a majority of these students are employed as teachers,

teaching in their original NDEA field. On the other hand, only a small proportion of the NDEA Fellows in the Discontinued group currently hold academic positions or work in a field related to their NDEA studies--hence they constitute a definite loss to the program. This loss can be primarily attributed to unavoidable judgment errors to which every selection procedure is subject. In fact, with only 20 per cent of all NDEA Fellows withdrawing from Ph.D. programs (compared to the earlier quoted 50-60% of all graduate students) it would appear that either the selection processes operated very effectively, or that the program was indeed a powerful motivator for most graduate students who benefited from it.

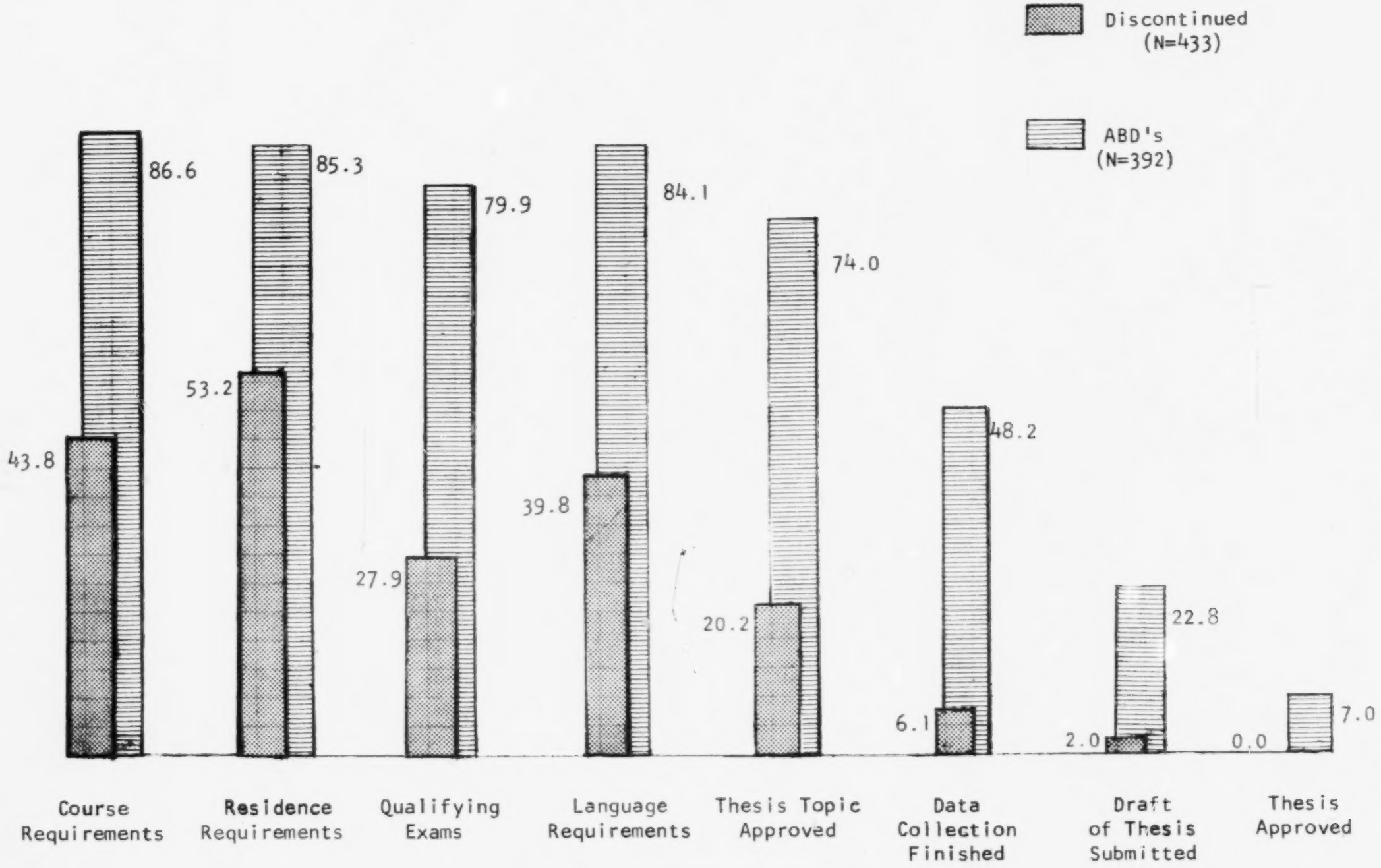

FIGURE V-1

PROPORTION OF ABD'S AND DISCONTINUED STUDENTS WHO HAVE COMPLETED EACH DOCTORAL REQUIREMENT: NDEA FELLOWS

TABLE V-1A

AGE, SEX, AND MARITAL STATUS: ABD'S

Age and Marital Status	1960-61 NDEA			1961-62 NDEA		
	Men	Women	Total	Men	Women	Total
A. Sex Composition	80.0	20.0	100.0	85.8	14.2	100.0
(N)			(180)			(212)
B. Age at Time of Survey						
20-29 years	-	2.8	0.6	7.4	23.3	9.7
30-39 years	94.3	94.4	94.4	88.1	73.3	85.9
40-49 years	4.3	2.8	4.0	4.5	3.3	4.4
50-59 years	1.4	-	1.1	-	-	-
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(141)	(36)	(177)	(176)	(30)	(206)
Median age	34.8	34.5	34.7	34.3	33.1	34.2
C. Proportion Married during Each Year of Graduate Study						
First year	43.6	27.8	40.3	48.3	33.3	46.1
(N)	(140)	(36)	(176)	(174)	(30)	(204)
Second year	56.5	45.7	54.3	57.8	44.8	55.9
(N)	(138)	(35)	(173)	(173)	(29)	(202)
Third year	62.2	57.1	61.2	66.5	53.6	64.6
(N)	(135)	(35)	(170)	(170)	(28)	(198)
Fourth year	67.2	70.0	67.8	70.5	60.0	69.0
(N)	(119)	(30)	(149)	(146)	(25)	(171)
Fifth year	70.5	75.9	71.6	75.2	65.2	73.7
(N)	(112)	(29)	(141)	(133)	(23)	(156)
D. Proportion Currently Married	77.3	81.2	78.1	80.0	57.1	76.5
(N)	(128)	(32)	(160)	(155)	(28)	(183)

TABLE V-1B

AGE, SEX, AND MARITAL STATUS OF DISCONTINUED STUDENTS

Age and Marital Status	1960-61 NDEA			1961-62 NDEA		
	Men	Women	Total	Men	Women	Total
A. Sex Composition	78.0	22.0	100.0	76.1	23.9	100.0
(N)			(214)			(213)
B. Age at Time of Survey						
20-29 years	0.6	4.3	1.4	10.8	14.6	11.7
30-39 years	91.5	82.6	89.5	82.8	81.2	82.4
40-49 years	7.3	8.7	7.6	6.4	2.1	5.4
50-59 years	0.6	4.3	1.4	-	2.1	0.5
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(164)	(46)	(210)	(157)	(48)	(205)
Median age	34.9	35.0	34.9	34.2	33.9	34.1
C. Proportion Married during Each Year of Graduate Study						
First year	42.9	17.0	37.1	40.3	19.1	35.3
(N)	(163)	(47)	(210)	(154)	(47)	(201)
Second year	49.3	40.0	47.2	46.7	32.4	43.7
(N)	(138)	(40)	(178)	(137)	(37)	(174)
Third year	59.8	48.4	57.3	51.4	48.3	50.7
(N)	(112)	(31)	(143)	(111)	(29)	(140)
Fourth year	57.5	[12]	59.3	52.2	[10]	52.3
(N)	(73)	(18)	(91)	(69)	(19)	(88)
Fifth year	64.8	[12]	68.1	57.4	[8]	55.7
(N)	(54)	(15)	(69)	(54)	(16)	(70)
D. Proportion Currently Married	81.7	81.6	81.7	71.9	81.4	74.4
(N)	(115)	(38)	(153)	(121)	(43)	(164)

TABLE V-2

DISCONTINUED NDEA FELLOWS: REASONS FOR DISCONTINUING STUDIES
(Per cent citing each reason)

1960-61 NDEA				1961-62 NDEA			
Men (N = 167)		Women (N = 47)		Men (N = 162)		Women (N = 51)	
Dissatisfaction with the program	52.7	Doctorate not necessary to career goal	48.9	Dissatisfaction with the program	51.8	Dissatisfaction with the program	47.0
Changed career goals	50.9	Dissatisfaction with the program	40.4	Doctorate not necessary to career goal	45.1	Doctorate not necessary to career goal	43.1
Doctorate not necessary to career goal	43.7	Changed career goals	38.3	Changed career goals	36.4	Changed career goals	35.3
Other	26.9	Marriage	31.9	Other	33.3	Marriage	35.3
Financial problems	22.8	Other	27.6	Dissertation difficulties	25.9	Other	29.4
Dissertation difficulties	21.0	Financial problems	19.1	Financial problems	25.3	Difficulties with qualifying exams	19.6
Coursework difficulties	17.4	Coursework difficulties	14.9	Difficulties with qualifying exams	20.4	Financial problems	17.6
Difficulties with qualifying exams	12.0	Difficulties with qualifying exams	14.9	Coursework difficulties	13.0	Dissertation difficulties	13.7
Marriage	6.0	Dissertation difficulties	14.9	Marriage	2.5	Coursework difficulties	9.8

TABLE V-3

PARENTAL INCOME OF ABD'S AND DISCONTINUED STUDENTS

Parental Income	ABD's	Discontinued Students
A. Percentage Distribution		
Less than $5,000	21.7	15.0
$5,000 to $7,499	23.2	26.3
$7,500 to $9,999	23.2	24.4
$10,000 to $14,999	19.4	18.8
$15,000 to $19,999	8.7	7.0
$20,000 to $24,999	1.7	3.8
$25,000 and over	2.0	4.8
Total %	100.0	100.0
(N)	(345)	(373)
Median Income	$8,046	$8,392
B. Expressed as Proportion of Total NDEA in Each Category		
Less than $5,000 (N)	19.2 (391)	14.3 (391)
$5,000 to $7,499 (N)	17.5 (456)	21.5 (456)
$7,500 to $9,999 (N)	18.5 (433)	21.0 (433)
$10,000 to $14,999 (N)	17.8 (376)	18.6 (376)
$15,000 to $19,999 (N)	24.0 (125)	20.8 (125)
$20,000 to $24,999 (N)	13.0 (46)	30.4 (46)
$25,000 and over (N)	10.8 (65)	27.7 (65)

TABLE V-4

FATHER'S OCCUPATION OF ABD'S AND DISCONTINUED STUDENTS

Father's Occupation	ABD's	Discontinued Students
A. Percentage Distribution		
Teacher or educator	8.9	5.1
Other professional	10.3	15.4
Proprietor or business official	18.9	24.3
Farm owner or manager	5.1	6.8
Technician or semi-professional worker	3.8	3.5
Salesman or clerical worker	9.7	8.1
Skilled or semi-skilled operative or service worker	24.1	25.1
Unskilled laborer or farm worker	3.2	1.8
Other	15.9	9.9
Total %	100.0	100.0
(N)	(370)	(395)
B. Expressed as Proportion of Total NDEA in Each Category		
Teacher or educator (N)	25.2 (131)	15.3 (131)
Other professional (N)	15.1 (252)	24.2 (252)
Proprietor or business official (N)	16.4 (428)	22.4 (428)
Farm owner or manager (N)	11.0 (172)	15.7 (172)
Technician or semi-professional worker (N)	27.4 (51)	27.4 (51)
Salesman or clerical worker (N)	21.4 (168)	19.0 (168)
Skilled or semi-skilled operative or service worker (N)	19.1 (467)	21.2 (467)
Unskilled laborer or farm worker (N)	19.4 (62)	11.3 (62)
Other (N)	20.3 (291)	13.4 (291)

TABLE V-5

FATHER'S EDUCATION OF ABD'S AND DISCONTINUED STUDENTS

Father's Education	ABD's	Discontinued Students
A. Percentage Distribution		
Less than high school completion	36.0	34.5
High school graduate	21.2	23.8
Some college	12.9	13.1
College graduate	13.6	15.3
Postgraduate study	16.3	13.1
Total %	100.0	100.0
(N)	(381)	(411)
B. Expressed as Proportion of Total NDEA in Each Category		
Less than high school completion	17.1	17.7
(N)	(803)	(803)
High school graduate	18.5	22.4
(N)	(437)	(437)
Some college	16.5	18.2
(N)	(297)	(297)
College graduate	20.2	24.4
(N)	(258)	(258)
Postgraduate study	21.7	18.9
(N)	(286)	(286)

TABLE V-6

MOTHER'S EDUCATION OF ABD'S AND DISCONTINUED STUDENTS

Mother's Education	ABD's	Discontinued Students
A. Percentage Distribution		
Less than high school completion	26.0	26.0
High school graduate	34.1	33.3
Some college	21.8	21.2
College graduate	10.5	11.9
Postgraduate study	7.6	7.5
Total %	100.0	100.0
(N)	(381)	(411)
B. Expressed as Proportion of Total NDEA in Each Category		
Less than high school completion	16.9	18.2
(N)	(587)	(587)
High school graduate	18.5	19.5
(N)	(703)	(703)
Some college	20.6	21.6
(N)	(402)	(402)
College graduate	15.2	18.6
(N)	(264)	(264)
Postgraduate study	23.2	24.8
(N)	(125)	(125)

TABLE V-7

STUDY FIELDS OF ABD'S AND DISCONTINUED STUDENTS
(In percentages)

Study Fields	ABD's			Discontinued Students		
	Men	Women	Total	Men	Women	Total
A. Percentage Distribution						
Education	2.8	4.5	3.1	3.4	7.4	4.3
Humanities	38.7	54.5	41.4	24.5	46.3	29.5
Business and Professions	1.6	-	1.3	2.8	-	2.2
Social Sciences	33.9	31.8	33.6	23.9	24.2	24.0
Psychology	0.6	-	0.5	0.9	4.2	1.7
Biological Sciences	6.6	1.5	5.7	6.2	8.4	6.7
Physical Sciences	10.7	7.6	10.2	22.0	9.5	19.2
Engineering	5.0	-	4.2	16.1	-	12.5
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(318)	(66)	(384)	(322)	(95)	(417)
B. Expressed as Proportion of Total NDEA in Each Study Field						
Education	7.8	[3]	9.0	9.6	[7]	13.5
(N)	(115)	(18)	(133)	(115)	(18)	(133)
Humanities	31.1	31.8	31.2	19.9	38.9	24.2
(N)	(396)	(113)	(509)	(396)	(113)	(509)
Business and Professions	9.8	[0]	9.6	17.6	[0]	17.3
(N)	(51)	(1)	(52)	(51)	(1)	(52)
Social Sciences	24.4	31.8	25.3	17.4	34.8	19.6
(N)	(443)	(66)	(509)	(443)	(66)	(509)
Psychology	5.6	[0]	4.2	8.3	[4]	14.9
(N)	(36)	(11)	(47)	(36)	(11)	(47)
Biological Sciences	11.1	3.3	10.0	10.6	26.7	12.8
(N)	(189)	(30)	(219)	(189)	(30)	(219)
Physical Sciences	9.6	23.8	10.4	20.2	42.8	21.4
(N)	(352)	(21)	(373)	(352)	(21)	(373)
Engineering	6.4	[0]	6.3	20.9	[0]	20.5
(N)	(249)	(5)	(254)	(249)	(5)	(254)

TABLE V-8

UNDERGRADUATE GRADE-LETTER AVERAGE OF ABD'S
AND DISCONTINUED STUDENTS
(In percentages)

Undergraduate Average	ABD's			Discontinued Students		
	Men	Women	Total	Men	Women	Total
A. 1960-61 NDEA						
A and A+	18.4	25.0	19.8	20.7	17.4	20.0
A-	29.8	33.3	30.5	26.2	37.0	28.6
B+	31.9	25.0	30.5	35.4	28.3	33.8
B	8.5	8.3	8.5	9.1	13.0	10.0
B- or less	11.3	8.3	10.7	8.5	4.3	7.6
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(141)	(36)	(177)	(164)	(46)	(210)
Median	B+	A-	A-	B+	A-	B+
B. 1961-62 NDEA						
A and A+	15.9	23.3	17.0	15.6	20.8	16.8
A-	28.4	23.3	27.7	28.6	37.5	30.7
B+	31.8	36.7	32.5	36.4	33.3	35.6
B	11.9	6.7	11.2	11.7	8.3	10.9
B- or less	11.9	10.0	11.6	7.8	-	5.9
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(176)	(30)	(206)	(154)	(48)	(202)
Median	B+	B+	B+	B+	A-	B+

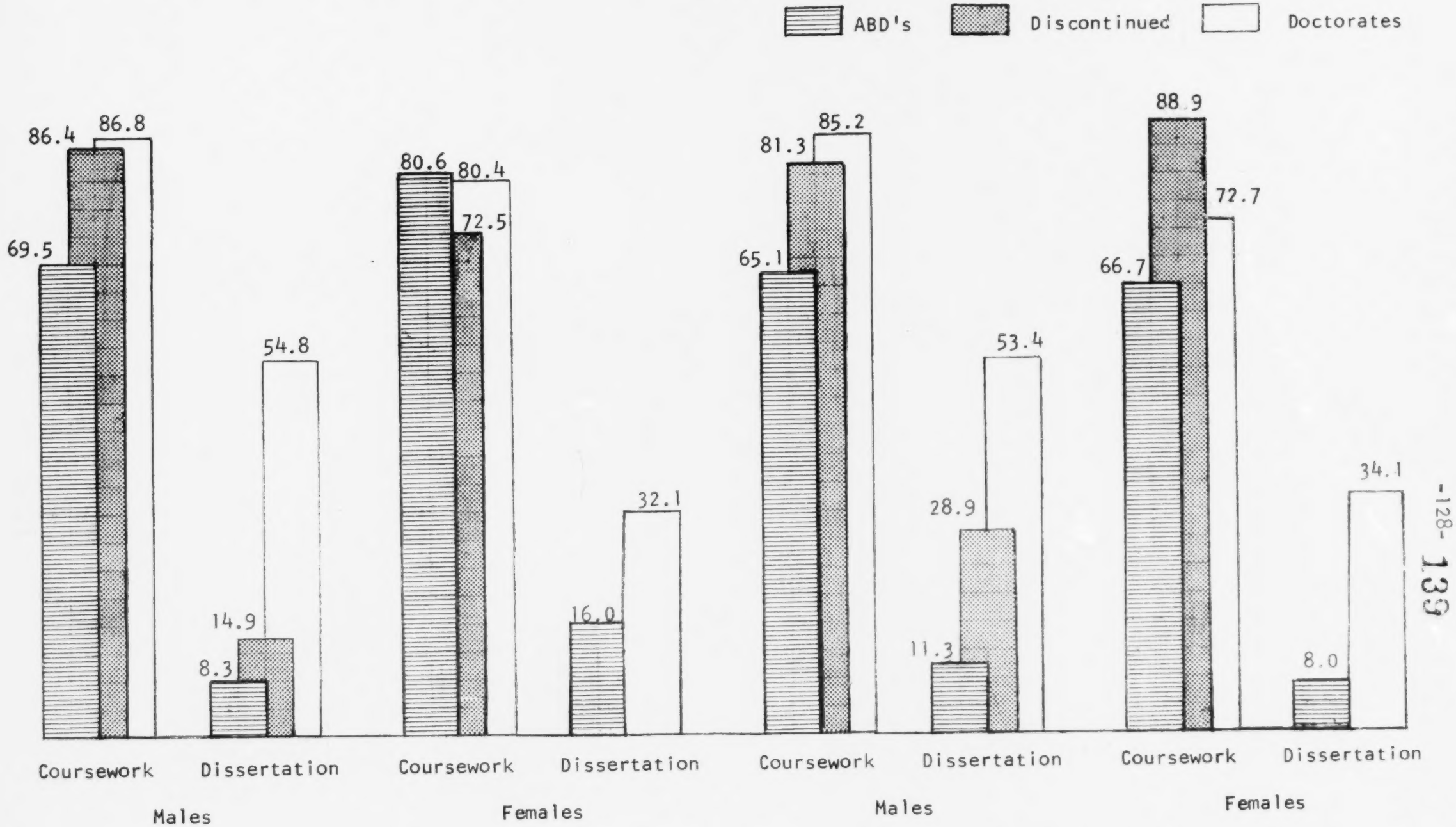

FIGURE V-2

PROPORTION OF FELLOWS WHO COULD WORK FULL-TIME ON COURSEWORK AND DISSERTATION WORK: DOCTORATES, ABD'S, AND DISCONTINUED STUDENTS[a]

[a]Categories are omitted when the percentage base is less than 20.

TABLE V-9

ABD'S: CURRENT WORKLOAD ON DOCTORAL REQUIREMENTS AND ESTIMATED DOCTORAL COMPLETION DATE

Workload and Expected Completion Date	1960-61 ABD's	1961-62 ABD's	Total ABD's
A. Current Workload on Doctoral Requirements			
Full-time	13.9	23.9	19.3
About half-time	36.4	32.2	34.1
Occasionally	39.9	33.2	36.2
Not currently working on doctorate	9.8	10.7	10.3
Total %	100.0	100.0	100.0
(N)	(173)	(205)	(378)
B. Estimated Ph. D. Completion Date			
1969	60.6	54.7	57.5
1970	32.8	35.2	34.1
1971	4.1	9.4	6.9
1972 or later	2.5	0.7	1.5
Total %	100.0	100.0	100.0
(N)	(122)	(139)	(261)

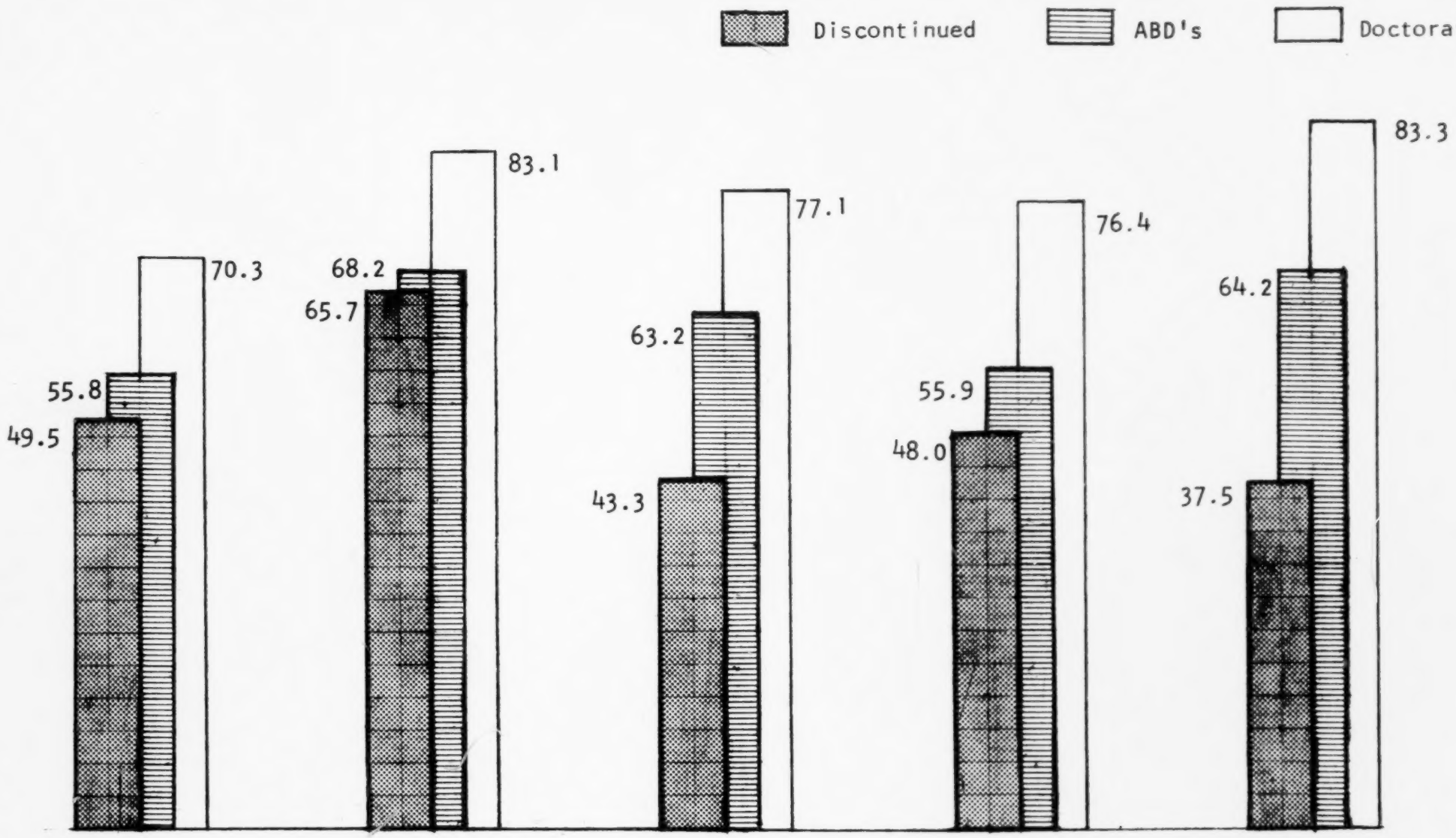

FIGURE V-3

PROPORTION AGREEING THAT THE DOCTORAL PROGRAM WAS VERY ADEQUATE OR ADEQUATE IN VARIOUS ASPECTS: DOCTORATES, ABD'S, AND DISCONTINUED STUDENTS[a]

[a]"Does not apply" and "No answer" frequencies were excluded from percentage bases.

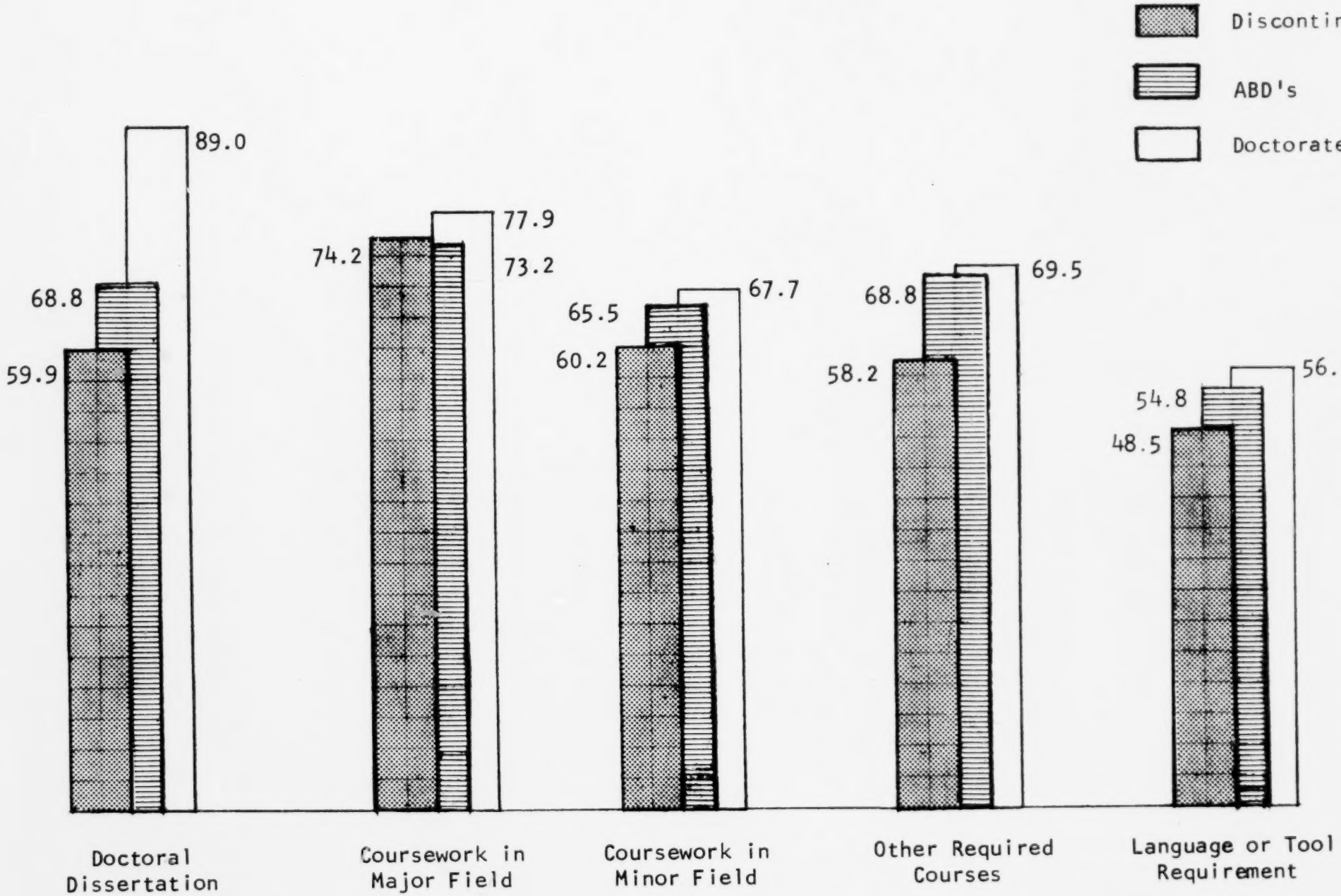

FIGURE V-4

PROPORTION AGREEING THAT THE RIGHT AMOUNT OF EMPHASIS WAS PLACED ON VARIOUS ASPECTS OF THE DOCTORAL PROGRAM: DOCTORATES, ABD'S, AND DISCONTINUED STUDENTS[a]

[a]"Does not apply" and "No answer" frequencies were excluded from percentage bases.

TABLE V-10

FACTORS CREATING ANY DIFFICULTY DURING DOCTORAL STUDIES
FOR NDEA DOCTORATES, ABD'S AND DISCONTINUED STUDENTS[a]
(Per cent encountering each difficulty)

Doctorates		ABD's		Discontinued Students	
Writing thesis off-campus while working full-time	67.1	Writing thesis off-campus while working full-time	94.6	Loss of interest	73.6
Financial problems	54.5	Dissertation difficulties	81.3	Writing thesis off-campus while working full-time	67.9
Dissertation difficulties	47.6	Financial problems	62.5	Dissertation difficulties	67.5
Family obligations	47.4	Family obligations	62.5	Changes in academic interests	59.3
Poor courses	43.6	Changes in thesis topic	60.4	Poor courses	57.6
Difficulties with foreign language requirements	41.0	Loss of interest	53.2	Changes in thesis topic	53.8
General exams	24.3	Poor courses	47.1	Financial problems	50.9
Changes in thesis topic	24.2	Changes in academic interests	44.8	Family obligations	46.9
Loss of interest	24.1	Holding a teaching assistantship	42.0	Difficulties with foreign language requirements	42.8
Holding a teaching assistantship	22.6	Difficulties with foreign language requirements	38.8	Difficulties with thesis committee	41.9
Changes in academic interests	22.0	Inaccessibility of faculty	37.7	Inaccessibility of faculty	39.5
Difficulties with thesis committee	20.1	Difficulties with thesis committee	35.4	General exams	35.9
Inaccessibility of faculty	18.4	General exams	34.2	Unsatisfactory academic progress	31.7
Other	16.2	Other	22.9	Other	27.1
Unsatisfactory academic progress	8.0	Military service	20.3	Holding a teaching assistantship	17.9
Military service	8.0	Unsatisfactory academic progress	17.3	Holding a research assistantship	14.1
Holding a research assistantship	7.8	Holding a research assistantship	9.8	Military service	11.3

[a]"Does not apply" and "no answer" frequencies were excluded from base totals; percentages are thus based on only the respondents for whom each factor was applicable.

TABLE V-11

TYPE OF CURRENT EMPLOYER OF ABD'S AND DISCONTINUED STUDENTS
(In percentages)

Type of Employer	ABD's			Discontinued Students		
	Men	Women	Total	Men	Women	Total
A. 1960-61 NDEA						
College or university	80.0	70.0	78.7	13.4	32.1	16.2
Junior college or technical institute	0.8	5.0	1.3	3.8	3.6	3.8
High school	0.8	10.0	2.0	8.3	7.1	8.1
Elementary school	-	15.0	2.0	-	-	-
Industry	6.9	-	6.0	42.7	14.3	38.4
Federal government	4.6	-	4.0	14.0	10.7	13.5
State or local government	0.8	-	0.7	3.8	7.1	4.3
Nonprofit organization	2.3	-	2.0	5.1	7.1	5.4
Other	3.8	-	3.3	8.9	17.9	10.3
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(130)	(20)	(150)	(157)	(28)	(185)
B. 1961-62 NDEA						
College or university	77.3	[17]	78.7	20.8	21.4	20.9
Junior college or technical institute	2.0	[1]	2.4	4.5	10.7	5.5
High school	2.0	-	1.8	8.4	14.3	9.3
Elementary school	-	-	-	1.3	7.1	2.2
Industry	6.7	-	5.9	41.6	14.3	37.4
Federal government	6.7	[1]	6.5	8.4	3.6	7.7
State or local government	0.7	-	0.6	6.5	3.6	6.0
Nonprofit organization	2.0	-	1.8	2.6	14.3	4.4
Other	2.7	-	2.4	5.8	10.7	6.6
Total %	100.0	-	100.0	100.0	100.0	100.0
(N)	(150)	(19)	(169)	(154)	(28)	(182)

TABLE V-12

PROPORTION CURRENTLY IN ACADEMIC EMPLOYMENT AMONG ABD'S AND DISCONTINUED STUDENTS IN SOME STUDY FIELDS

	ABD's	Discontinued Students
A. 1960-61 NDEA		
Humanities	93.9	48.9
(N)	(66)	(47)
Social Sciences	80.8	25.9
(N)	(52)	(54)
Other study fields	68.8	17.9
(N)	(32)	(84)
Total Group	84.0	28.1
(N)	(150)	(185)
B. 1961-62 NDEA		
Humanities	95.3	67.3
(N)	(64)	(52)
Social Sciences	81.4	35.3
(N)	(59)	(34)
Other study fields	67.4	22.9
(N)	(46)	(96)
Total Group	82.8	37.9
(N)	(169)	(182)

TABLE V-13

SIMILARITY OF CURRENT EMPLOYMENT FIELD AND DOCTORAL FIELD:
ABD'S AND DISCONTINUED STUDENTS
(In percentages)

Similarity of Fields	ABD's			Discontinued Students		
	Men	Women	Total	Men	Women	Total
A. 1960-61 NDEA						
Employed in doctoral field or in the same major area	93.8	85.0	92.6	62.8	50.0	60.9
Employed in another academic field	2.3	15.0	4.0	5.8	21.4	8.2
Employed in a nonacademic field	3.9	-	3.4	31.4	28.6	31.0
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(128)	(20)	(148)	(156)	(28)	(184)
B. 1961-62 NDEA						
Employed in doctoral field or in the same major area	93.4	95.0	93.6	75.5	67.9	74.3
Employed in another academic field	1.3	-	1.2	5.3	7.1	5.6
Employed in a nonacademic field	5.3	5.0	5.3	19.2	25.0	20.1
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(151)	(20)	(171)	(151)	(28)	(179)

TABLE V-14

TYPE OF CURRENT AND IDEAL EMPLOYER AMONG ABD'S
AND DISCONTINUED STUDENTS HOLDING
AN M. A. DEGREE
(In percentages)

Type of Employer	ABD's			Discontinued Students		
	Men	Women	Total	Men	Women	Total
A. Proportion of total group who hold an M. A. degree	71.8	66.7	70.9	70.2	70.4	70.3
(N)	(326)	(66)	(392)	(329)	(98)	(427)
B. Current Employer						
College or university	77.8	82.1	78.3	21.1	31.0	22.6
Junior college or technical institute	1.9	7.1	2.6	5.8	9.5	6.4
Secondary school	1.4	3.6	1.7	7.2	7.1	7.2
Elementary school	-	7.1	0.8	0.9	4.8	1.5
Industry	7.2	-	6.4	41.3	11.9	36.6
Federal government	5.8	-	5.1	9.4	7.1	9.0
State or local government	0.5	-	0.4	4.9	4.8	4.9
Nonprofit organization	1.9	-	1.7	3.6	11.9	4.9
Other	3.4	-	3.0	5.8	11.9	6.8
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(207)	(28)	(235)	(223)	(42)	(265)
C. Ideal Employer						
College or university	83.7	93.2	85.2	26.6	54.5	32.9
Junior college or technical institute	0.4	2.3	0.7	3.5	4.5	3.7
Elementary or secondary school	-	-	-	4.4	10.6	5.8
Industry	3.0	-	2.5	36.7	4.5	29.5
Federal government	1.7	-	1.4	6.6	1.5	5.4
State or local government	-	-	-	2.2	1.5	2.0
Nonprofit organization	1.3	2.3	1.4	0.4	7.6	2.0
Other	3.0	2.3	2.9	8.3	3.0	7.1
Undecided/don't know	6.9	-	5.8	11.4	12.1	11.5
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(233)	(44)	(277)	(229)	(66)	(295)

VI. RESIGNED FELLOWS

According to the data obtained from t records of the U.S. Office of Education, nearly a quarter of the NDEA Fellowship recipients from the two study cohorts resigned from the program without completing Fellowship tenure.[1] The rates of resignations reported by the NDEA Fellows who completed questionnaires (18% in each year) indicate that half of the resigned Fellows did not respond to the Phase II survey. The low number of respondents in this group has permitted limited analyses only, the results of which must be tempered with the consideration of a nonresponse bias in this group. However, some of the trends described in the Phase I report were also observed among the resigned Fellows in the sample. For example, in both bodies of data there were proportionately more women than men in the resigned group, older grantees were slightly less likely to resign than younger grantees (although the number of cases involved are small), and married men were slightly less likely to resign than single men (Tables VI-1 and -2).

The proportion of dropouts among NDEA respondents in various fields was highest among the grantees in Engineering and lowest among those in Education (Table VI-3). There were slightly higher resignation rates than elsewhere among Fellows who attended graduate institutions in the South Atlantic states, but the regional differences changed from one academic year to the next (Table VI-4). The proportion of dropouts was lowest among grantees from rural areas (Table VI-5). Finally, there

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[1]See Sharp, et al., 1968, op. cit., Table II-1, p. 47.

was an indication that over one-fourth of the NDEA students who interrupted doctoral studies for military service were resigned Fellows (Table VI-6), although draft or military service was not listed in the questionnaire as a possible reason for resigning from the NDEA program (Table VI-7). Over one-fourth of the resigned Fellows seemed to take this step because of a change in career plans, while one-fifth said personal reasons such as illness or marriage caused their resignations.

Socioeconomic background did not appear to be related to resignations (Tables VI-8 to VI-10), although some trends could be discerned; for example, the lowest rates of resignations were among Fellows whose fathers were teachers or educators. On the other hand, those Fellows whose parents earned more than $20,000 annually were more likely to resign than others. This finding is in line with the higher withdrawal rates for this group, discussed in the preceding section. Approximately half of the resigned Fellows had an undergraduate grade letter average of B+ or below (Table VI-11).

Only one-fifth of those who resigned their Fellowship had completed the doctorate at the time of the survey, while another one-fifth hoped to receive it in the near future (Figure III-1).[2] Approximately 60 per cent of the resigned Fellows in both years had decided to discontinue their predoctoral studies. Moreover, those resigned Fellows who obtained the doctorate required a slightly longer time than Fellows who completed tenure to obtain their doctorates.[3]

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[2]Although fewer than half of this group had completed any of the doctoral requirements, and only one-third were advanced enough to start work on the dissertation (Table VI-12).

[3]The B.A. and Ph.D. time lapse for the resigned male Fellows (there were too few women to obtain a meaningful mean) was 7.4 mean years as compared to 6.4 mean years for tenure completed Fellows. Similarly, the Entry and Ph.D. time lapse for the resigned male Fellows was 6.9 mean years as against 6.6 years for the tenure completed group.

Table VI-13 presents the full-time and part-time employment status of the resigned Fellows. There are too few cases of doctorates to permit analysis, but among the nondoctorates, the majority of the men had full-time positions, while only about one-third of the women had full-time employment. The low rate of full-time employment among women resignees without the doctorate probably reflects the family orientation of these women; apparently, they drop out not only from graduate school but also from the labor market.

Approximately three-fourths of the doctorates were employed in colleges or universities, while the academic employment rates for nondoctorates were very low: less than one-fifth (Table VI-14). The largest employer of the nondoctorates in this group was industry.

In summary, the resignations seem to be caused by two major factors. The first is losing interest in one's doctoral field and changing career plans. This finding is substantiated by the high rates of attrition among resigned Fellows and by the tendency of the nondoctorates to go into industry or business. The second factor is related to changes in the personal life situation, in particular marriage, which seems to cause women students to withdraw from school and from the labor market.

TABLE VI-1

RESIGNATION RATE AMONG NDEA RECIPIENTS
AND AGE DISTRIBUTION OF RESIGNEES
(In percentages)

Item	1960-61 NDEA			1961-62 NDEA		
	Men	Women	Total	Men	Women	Total
A. Proportion of Total NDEA who resigned from the NDEA program	16.8	24.3	17.8	15.9	28.8	17.5
(N)	(899)	(140)	(1039)	(932)	(125)	(1057)
B. Age Distribution of Resignees						
20 to 29 years	-	3.0	0.5	12.2	16.7	13.0
30 to 39 years	93.3	87.9	92.3	81.8	72.2	79.9
40 to 49 years	6.7	6.1	6.6	5.4	8.3	6.0
50 to 59 years	-	3.0	0.5	0.7	2.8	1.1
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(150)	(33)	(183)	(148)	(36)	(184)
Median age	34.9	34.8	34.9	34.1	34.1	34.1
C. Age of Resignees Expressed as Proportion of Total NDEA in Each Category						
20 to 29 years	[0]	[1]	[1]	21.2	24.0	21.8
(N)	(8)	(4)	(12)	(85)	(25)	(110)
30 to 39 years	17.4	24.0	18.3	15.7	31.3	17.2
(N)	(804)	(121)	(925)	(769)	(83)	(852)
40 to 49 years	13.9	[2]	14.4	12.9	[3]	14.7
(N)	(72)	(11)	(83)	(62)	(13)	(75)
50 to 59 years	[0]	[1]	[1]	[1]	[1]	[2]
(N)	(9)	(3)	(12)	(5)	(4)	(9)

TABLE VI-2

MARITAL STATUS OF RESIGNEES
(In percentages)

Marital Status	1960-61 NDEA			1961-62 NDEA		
	Men	Women	Total	Men	Women	Total
A. Per cent Married						
During first year of graduate study (N)	48.0 (150)	11.8 (34)	41.3 (184)	47.9 (142)	17.6 (34)	42.0 (176)
During second year of graduate study (N)	57.4 (122)	44.4 (27)	55.0 (149)	55.2 (125)	30.4 (23)	51.4 (148)
During third year of graduate study (N)	59.1 (93)	61.1 (18)	59.4 (111)	65.6 (96)	43.7 (16)	62.5 (112)
During fourth year of graduate study (N)	62.0 (79)	68.7 (16)	63.2 (95)	67.5 (80)	50.0 (12)	65.2 (92)
During fifth year of graduate study (N)	70.1 (67)	78.6 (14)	71.6 (81)	72.1 (68)	40.0 (10)	67.9 (78)
Currently married (N)	87.3 (110)	74.1 (27)	84.7 (137)	80.9 (115)	83.3 (30)	81.4 (145)
B. Expressed as Proportion of Total NDEA in Each Category						
Married first year of study (N)	16.0 (451)	12.5 (32)	15.7 (483)	14.0 (487)	19.4 (31)	14.3 (518)
Married second year of study (N)	13.5 (517)	23.5 (51)	14.4 (568)	12.6 (548)	16.7 (42)	12.9 (590)
Married third year of study (N)	10.0 (551)	18.3 (60)	10.8 (611)	10.8 (586)	14.0 (50)	11.0 (636)
Married fourth year of study (N)	10.0 (492)	18.3 (60)	10.9 (552)	10.5 (515)	14.0 (43)	10.8 (558)

TABLE VI-2--Continued

Marital Status	1960-61 NDEA			1961-62 NDEA		
	Men	Women	Total	Men	Women	Total
Married fifth year of study	11.7	20.0	12.7	12.2	10.2	12.1
(N)	(401)	(55)	(456)	(400)	(39)	(439)
Currently married	15.2	22.7	16.2	14.6	32.0	16.4
(N)	(630)	(88)	(718)	(634)	(78)	(717)

TABLE VI-3

STUDY FIELDS OF RESIGNEES
(In percentages)

Study Fields	1960-61 NDEA			1961-62 NDEA		
	Men	Women	Total	Men	Women	Total
A. Percentage Distribution						
Education	1.4	15.2	3.9	5.6	6.1	5.6
Humanities	18.5	30.3	20.7	18.0	45.4	23.2
Business and Professions	2.0	-	1.7	2.8	-	2.2
Social Sciences	28.1	30.3	28.5	24.3	24.2	24.3
Psychology	1.4	6.1	2.2	2.1	3.0	2.2
Biological Sciences	8.2	6.1	7.8	13.9	12.1	13.6
Physical Sciences	24.0	12.1	21.8	20.1	9.1	18.1
Engineering	16.4	-	13.4	13.2	-	10.7
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(146)	(33)	(179)	(144)	(33)	(177)
B. Expressed as Proportion of Total NDEA in Each Study Field						
Education	3.9	[5]	11.3	12.5	[2]	14.1
(N)	(51)	(11)	(62)	(64)	(7)	(71)
Humanities	13.2	16.7	14.0	13.6	28.3	16.8
(N)	(205)	(60)	(265)	(191)	(53)	(244)
Business and Professions	11.1	[0]	10.7	16.7	-	16.7
(N)	(27)	(1)	(28)	(24)	(0)	(24)
Social Sciences	18.4	27.8	19.7	15.9	26.7	17.2
(N)	(223)	(36)	(259)	(220)	(30)	(250)
Psychology	[2]	[2]	[4]	13.0	[1]	14.3
(N)	(13)	(6)	(19)	(23)	(5)	(28)
Biological Sciences	14.5	[2]	14.0	18.9	[4]	20.2
(N)	(83)	(17)	(100)	(106)	(13)	(119)
Physical Sciences	19.6	[4]	20.9	16.8	[3]	17.2
(N)	(179)	(8)	(187)	(173)	(13)	(186)
Engineering	20.3	[0]	20.2	14.5	[0]	14.1
(N)	(118)	(1)	(119)	(131)	(4)	(135)

TABLE VI-4

REGIONAL DISTRIBUTION OF RESIGNEES[a]

Geographic Region	1960-61 NDEA			1961-62 NDEA		
	Men	Women	Total	Men	Women	Total
A. Percentage Distribution						
New England	6.6	2.9	5.9	4.7	2.8	4.3
Middle Atlantic	10.6	17.6	11.9	12.8	11.1	12.4
East North Central	13.2	20.6	14.6	20.1	11.1	18.4
West North Central	11.9	2.9	10.3	9.4	11.1	9.7
South Atlantic	21.9	17.6	21.1	16.8	19.4	17.3
East South Central	6.6	2.9	5.9	6.7	13.9	8.1
West South Central	12.6	5.9	11.4	10.1	8.3	9.7
Mountain	7.9	5.9	7.6	8.7	5.6	8.1
Pacific	8.6	23.5	11.4	10.7	16.7	11.9
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(151)	(34)	(185)	(149)	(36)	(185)
B. Expressed as Proportion of Total NDEA in Each Region						
New England	16.9	[1]	16.4	9.8	[1]	9.4
(N)	(59)	(8)	(67)	(71)	(14)	(85)
Middle Atlantic	17.2	[6]	19.6	15.7	[4]	16.5
(N)	(93)	(19)	(112)	(121)	(18)	(139)
East North Central	14.6	28.0	16.7	21.0	[4]	21.0
(N)	(137)	(25)	(162)	(143)	(19)	(162)
West North Central	16.4	[1]	15.1	13.1	[4]	15.0
(N)	(110)	(16)	(126)	(107)	(13)	(120)
South Atlantic	22.8	28.6	23.5	16.8	[7]	19.8
(N)	(145)	(21)	(166)	(149)	(13)	(162)
East South Central	14.7	[1]	14.3	13.7	[5]	17.6
(N)	(68)	(9)	(77)	(73)	(12)	(85)
West South Central	20.4	[2]	19.4	17.6	[3]	19.1
(N)	(93)	(15)	(108)	(85)	(9)	(94)
Mountain	13.8	[2]	15.1	16.7	[2]	17.0
(N)	(87)	(6)	(93)	(78)	(10)	(88)
Pacific	12.1	38.1	16.4	15.2	[6]	18.0
(N)	(107)	(21)	(128)	(105)	(17)	(122)

[a]Region refers to the geographic location of a respondent's graduate institution.

TABLE VI-5A

SIZE OF COMMUNITY OF RESIDENCE AT TIME
OF HIGH SCHOOL GRADUATION FOR RESIGNEES
(In percentages)

Size of High School Residence	1960-61 NDEA			1961-62 NDEA		
	Men	Women	Total	Men	Women	Total
A. Percentage Distribution						
A major city or suburb thereof	25.8	35.3	27.6	26.4	37.1	28.4
Other city or suburb thereof	21.2	14.7	20.0	14.2	25.7	16.4
A large town	37.7	47.1	39.4	34.5	31.4	33.9
A small town or rural area	15.2	2.9	13.0	25.0	5.7	21.3
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(151)	(34)	(185)	(148)	(35)	(183)
B. Expressed as Proportion of Total NDEA in Each Category						
A major city or suburb thereof	14.8	24.0	16.2	14.4	24.5	16.0
(N)	(264)	(50)	(314)	(271)	(53)	(324)
Other city or suburb thereof	21.8	18.5	21.3	16.2	45.0	20.0
(N)	(147)	(27)	(174)	(130)	(20)	(150)
A large town	21.4	41.0	23.9	17.3	31.4	18.8
(N)	(266)	(39)	(305)	(294)	(35)	(329)
A small town or rural area	10.4	4.3	9.9	15.9	[2]	15.7
(N)	(220)	(23)	(243)	(232)	(16)	(248)

TABLE VI-5B

SIZE OF CURRENT COMMUNITY OF RESIDENCE FOR RESIGNEES
(In percentages)

Size of Current Residence	1960-61 NDEA			1961-62 NDEA		
	Men	Women	Total	Men	Women	Total
A. Percentage Distribution						
A major city or suburb thereof	45.3	55.9	47.3	42.6	48.6	43.7
Other city or suburb thereof	20.9	11.8	19.2	20.9	28.6	22.4
A large town	26.4	32.4	27.5	30.4	17.1	27.9
A small town or rural area	7.4	-	6.0	6.1	5.7	6.0
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(148)	(34)	(182)	(148)	(35)	(183)
B. Expressed as Proportion of Total NDEA in Each Category						
A major city or suburb thereof	19.6	31.1	21.3	18.9	28.3	20.4
(N)	(342)	(61)	(403)	(333)	(60)	(393)
Other city or suburb thereof	16.1	18.2	16.3	14.6	33.3	16.9
(N)	(193)	(22)	(215)	(212)	(30)	(242)
A large town	14.2	23.9	15.6	14.3	24.0	15.0
(N)	(274)	(46)	(320)	(314)	(25)	(339)
A small town or rural area	13.6	[0]	12.0	13.8	[2]	14.9
(N)	(81)	(11)	(92)	(65)	(9)	(74)

TABLE VI-6

RECORD OF MILITARY SERVICE FOR RESIGNEES: MEN ONLY
(In percentages)

When Served	1960-61 Male Resignees	1961-62 Male Resignees
A. Percentage Distribution		
After graduate school or currently	8.6	4.7
During an interruption of graduate studies	6.0	3.4
While a graduate student	0.7	1.4
Prior to graduate studies	31.1	30.4
No, did not serve	53.6	60.1
Total %	100.0	100.0
(N)	(151)	(148)
B. Expressed as Proportion of Total NDEA in Each Category		
After graduate school or currently (N)	29.5 (44)	23.3 (30)
During an interruption of graduate studies (N)	30.0 (30)	22.7 (22)
While a graduate student (N)	[1] (16)	9.1 (22)
Prior to graduate studies (N)	16.5 (285)	16.8 (269)
No, did not serve (N)	15.5 (521)	15.2 (584)

TABLE VI-7

REASONS FOR RESIGNING FROM THE NDEA PROGRAM
WITHOUT COMPLETING TENURE
(In percentages)

Reasons for Resignation	1960-61	1961-62
Changes in field	9.1	8.6
Changes in school	14.1	10.8
Unsatisfactory academic progress	16.2	10.8
Change in career plans	27.0	24.9
Personal reasons (e.g., illness, marriage)	15.7	22.7
Completed doctoral requirements early	3.2	1.6
Other	14.6	20.5
Total %	100.0	100.0
(N)	(185)	(185)

TABLE VI-8

FATHER'S OCCUPATION OF RESIGNEES
(In percentages)

Father's Occupation	All Resignees
A. Percentage Distribution	
Teacher or educator	4.2
Other professional	14.2
Proprietor or business official	21.2
Farm owner or manager	7.2
Technician or semi-professional worker	3.3
Salesman or clerical worker	10.3
Skilled or semi-skilled operative or service worker	28.1
Unskilled laborer or farm worker	2.5
Other	8.9
Total %	100.0
(N)	(359)
B. Expressed as Proportion of Total NDEA in Each Category	
Teacher or educator (N)	11.4 (131)
Other professional (N)	20.2 (252)
Proprietor or business official (N)	17.8 (428)
Farm owner or manager (N)	15.1 (172)
Technician or semi-professional worker (N)	23.5 (51)
Salesman or clerical worker (N)	22.0 (168)
Skilled or semi-skilled operative or service worker (N)	21.6 (467)
Unskilled laborer or farm worker (N)	14.5 (62)
Other (N)	11.0 (291)

TABLE VI-9A

FATHER'S EDUCATION OF RESIGNEES
(In percentages)

Father's Education	All Resignees
A. Percentage Distribution	
Less than high school completion	39.1
High school graduate	23.9
Some college	12.2
College graduate	11.4
Postgraduate study	13.3
Total %	100.0
(N)	(368)
B. Expressed as Proportion of Total NDEA in Each Category	
Less than high school completion	17.9
(N)	(803)
High school graduate	20.1
(N)	(437)
Some college	15.2
(N)	(297)
College graduate	16.3
(N)	(258)
Postgraduate study	17.1
(N)	(286)

TABLE VI-9B

MOTHER'S EDUCATION OF RESIGNEES
(In percentages)

Mother's Education	All Resignees
A. Percentage Distribution	
Less than high school completion	27.5
High school graduate	34.6
Some college	18.5
College graduate	11.7
Postgraduate study	7.6
Total %	100.0
(N)	(367)
B. Expressed as Proportion of Total NDEA in Each Category	
Less than high school completion	17.2
(N)	(587)
High school graduate	18.1
(N)	(703)
Some college	16.9
(N)	(402)
College graduate	16.3
(N)	(264)
Postgraduate study	22.4
(N)	(125)

TABLE VI-10

PARENTAL INCOME OF RESIGNEES
(In percentages)

Parental Income	All Resignees
A. Percentage Distribution	
Less than $5,000	17.0
$5,000 to $7,499	27.1
$7,500 to $9,999	24.5
$10,000 to $14,999	18.4
$15,000 to $19,999	4.9
$20,000 to $24,999	3.5
$25,000 and over	4.6
Total %	100.0
(N)	(347)
B. Expressed as Proportion of Total NDEA in Each Category	
Less than $5,000 (N)	15.1 (391)
$5,000 to $7,499 (N)	20.6 (456)
$7,500 to $9,999 (N)	19.6 (433)
$10,000 to $14,999 (N)	17.0 (376)
$15,000 to $19,999 (N)	13.6 (125)
$20,000 to $24,999 (N)	26.1 (46)
$25,000 and over (N)	24.6 (65)

TABLE VI-11

UNDERGRADUATE GRADE-LETTER AVERAGE OF RESIGNEES
(In percentages)

Undergraduate Average	Men	Women	Total
A. 1960-61 NDEA			
A and A+	23.3	18.2	22.3
A-	24.0	42.4	27.4
B+	28.8	21.2	27.4
B	13.0	15.2	13.4
B- or less	11.0	3.0	9.5
Total %	100.0	100.0	100.0
(N)	(146)	(33)	(179)
Median	B+	A-	B+
B. 1961-62 NDEA			
A and A+	16.8	24.2	18.2
A-	30.8	24.2	29.5
B+	34.3	42.4	35.8
B	7.7	9.1	8.0
B- or less	10.5	-	8.5
Total %	100.0	100.0	100.0
(N)	(143)	(33)	(176)
Median	B+	B+	B+

TABLE VI-12

CURRENT ACADEMIC STATUS OF RESIGNEES: PROPORTION WHO HAVE COMPLETED EACH DOCTORAL REQUIREMENT

Doctoral Requirements	Men	Women	Total
Completed course requirements	42.8	23.3	39.3
(N)	(273)	(60)	(333)
Completed residence requirements	50.8	37.9	48.4
(N)	(266)	(58)	(324)
Passed qualifying exams	43.0	27.4	40.0
(N)	(263)	(62)	(325)
Completed language or tool requirements	44.6	34.4	42.7
(N)	(267)	(61)	(328)
Dissertation topic approved	38.0	22.2	35.0
(N)	(263)	(63)	(326)
Finished data collection for thesis	32.2	15.9	29.0
(N)	(258)	(63)	(321)
Draft of dissertation submitted	29.2	11.3	25.8
(N)	(260)	(62)	(322)
Dissertation approved	28.9	11.5	25.6
(N)	(256)	(61)	(317)

TABLE VI-13

CURRENT EMPLOYMENT STATUS OF RESIGNEES BY Ph. D. STATUS AND SEX
(In percentages)

Employment Status	Ph. D.			No Ph. D.			All Resignees		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
A. 1960-61 NDEA									
Working full-time	100.0	[4]	100.0	91.4	30.0	78.8	93.4	38.2	83.2
Working part-time	-	-	-	4.3	16.7	6.8	3.3	14.7	5.4
Not working	-	-	-	4.3	53.3	14.4	3.3	47.1	11.4
Total %	100.0	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(35)	(4)	(39)	(116)	(30)	(146)	(151)	(34)	(185)
B. 1961-62 NDEA									
Working full-time	100.0	[3]	100.0	86.0	36.4	74.8	89.3	41.7	80.0
Working part-time	-	-	-	4.4	12.1	6.1	3.4	11.1	4.9
Not working	-	-	-	9.6	51.5	19.0	7.4	47.2	15.1
Total %	100.0	-	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(35)	(3)	(38)	(114)	(33)	(147)	(149)	(36)	(185)

TABLE VI-14

TYPE OF CURRENT EMPLOYER BY Ph. D. STATUS AND SEX: RESIGNEES

Employer	Ph. D.			No. Ph. D.			All Resignees		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
A. 1960-61 NDEA									
College or university	77.1	[3]	76.9	15.5	[2]	15.3	30.3	[5]	30.1
Junior college or technical institute	-	-	-	4.5	-	4.0	3.4	-	3.1
High school	-	-	-	5.5	[3]	7.3	4.1	[3]	5.5
Elementary school	-	-	-	0.9	-	0.8	0.7	-	0.6
Industry	11.4	-	10.3	44.5	[2]	41.1	36.6	[2]	33.7
Federal government	8.6	[1]	10.3	10.9	[1]	10.5	10.3	[2]	10.4
State or local government	-	-	-	2.7	[1]	3.2	2.1	[1]	2.5
Nonprofit organization	-	-	-	5.5	[1]	5.6	4.1	[1]	4.3
Other	2.9	-	2.6	10.0	[4]	12.1	8.3	[4]	9.8
Total %	100.0	-	100.0	100.0	-	100.0	100.0	-	100.0
(N)	(35)	(4)	(39)	(110)	(14)	(124)	(145)	(18)	(163)

TABLE VI-14--Continued

Employer	Ph. D.			No Ph. D.			All Resignees		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
B. 1961-62 NDEA									
College or university	71.4	[2]	71.1	21.4	[3]	21.2	34.6	[5]	33.8
Junior college or technical institute	-	-	-	4.1	[1]	4.4	3.0	[1]	3.3
High school	-	-	-	8.2	[3]	9.7	6.0	[3]	7.3
Elementary school	-	[1]	2.6	2.0	[1]	2.7	1.5	[2]	2.6
Industry	5.7	-	5.3	42.9	[2]	38.9	33.1	[2]	30.5
Federal government	11.4	-	10.5	6.1	[1]	6.2	7.5	[1]	7.3
State or local government	-	-	-	6.1	-	5.3	4.5	-	4.0
Nonprofit organization	2.9	-	2.6	3.1	[2]	4.4	3.0	[2]	4.0
Other	8.6	-	7.9	6.1	[2]	7.1	6.8	[2]	7.3
Total %	100.0	-	100.0	100.0	-	100.0	100.0	-	100.0
(N)	(35)	(3)	(38)	(98)	(15)	(113)	(133)	(18)	(151)

VII. COMPARISON GROUP

As discussed in the Introduction, in order to evaluate the effectiveness of the NDEA program in fulfilling the objectives of its sponsors, we made an attempt to compare the doctoral completion rates and employment experiences of the NDEA Fellows with those of other graduate students. We were well aware of the difficulties of constructing an appropriate comparison group; ideally, a random sample of graduate students matched on such factors as academic ability and motivation, sex, study field, year and type of graduate enrollment and institutions would be called for. However, this was impossible for two (related) reasons: first, the NDEA Fellows were a select group, whereas a "controlled experiment" would require random assignment of NDEA Fellowships; second, it would require uniformity in graduate record-keeping among institutions participating in the NDEA program to assure reliable identification of first year doctoral students. Nevertheless, an attempt was made to secure a comparable group of non-NDEA students who enrolled as full-time "first year" doctoral students in the same year as our first NDEA cohort, 1960-61, in graduate institutions participating in the NDEA program.

The first difficulty with the comparison group came about when we found out that we could not reach one-fourth of these persons due to incorrect addresses. Second, although over 60 per cent of the total comparison group (or 83% of the group for whom we had correct addresses) returned completed questionnaires, the questionnaires of only 39.5 per cent (or approximately half of the contacted ones) met the eligibility

or acceptability criteria.[1] Finally, it was found that a significantly larger proportion of the comparison group students than the 1960-61 NDEA Fellows had graduate training prior to 1960-61 (39% as compared with 16%), further reducing the comparability of the two groups and the possibility of obtaining a matched group. Attempts to match the two groups by length of graduate training prior to 1960-61 and by other factors known to effect doctoral completion (e.g., sex, study fields) yielded too few cases for meaningful comparisons. In this section, we will present the results of comparisons made between the NDEA group and the comparison group from the same graduate institutions only (matched groups). This matching allows for the maximum use of the comparison group, losing only two cases, while reducing the 1960-61 NDEA group to 526 cases.

Throughout the earlier sections of this report, data based on the total comparison group were utilized to provide some insight into the attributes and accomplishments of the NDEA Fellows. To summarize, with the exception of differences in previous graduate training and a preponderance of comparison group students from West North Central states, there were basically no differences between the demographic and academic characteristics of the NDEA and comparison group students. Both groups were also similar in terms of attitudes toward doctoral study, although more of the NDEA than comparison group students were able to work full-time on general coursework requirements.

Comparison group students were more likely than 1960-61 NDEA Fellows as a whole to have obtained the doctorate by the time of our survey (but the trend was reversed when doctoral completion rates of only

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[1]See Appendix B for a description of nonacceptable questionnaires.

those 1960-61 Fellows who had completed Fellowship tenure were compared), but they required a longer time than the NDEA Fellows to complete the doctorate. Generally, the factors contributing to doctoral completion were similar in both groups: importance attributed to doctoral degree for future career success, full-time dissertation work schedule, lack of difficulties experienced during doctoral studies, and, to lesser degrees, such factors as sex and study field differences, and similarity of undergraduate major and graduate field.

Finally, there was no difference in the current or long term employment picture for NDEA and comparison group students, with the majority in both groups found to be highly committed to academic careers.

The analyses between the comparison group students and 1960-61 NDEA Fellows matched by graduate institutions produced similar results, although there was a significant difference in the study field distribution of both groups, reducing the comparability (Table VII-1). Comparison group students were more likely to be in the Natural Sciences (particularly in the Biological Sciences) than in the Social Sciences, with the exception of Psychology where there were more comparison group students than NDEA students. When psychology students in both groups were excluded from the analysis, there were significantly more comparison group students than NDEA Fellows in the Natural Sciences (chi square = 9.07, $p < .005$). Since study fields are related to doctoral completion the finding regarding the significantly higher rate of doctoral completion in the comparison group (69.3%) than in the NDEA group (58.3%) was not very reliable although significant (chi square = 12.6, $p < .001$). In spite of a larger proportion of students in fields characterized by rapid degree completion (i.e., Natural Sciences) in the comparison group,

these persons took an average of two years longer than the NDEA Fellows to complete the doctorate (Table VII-2). Slightly more of the comparison group students than NDEA students stated that the doctoral degree was absolutely necessary for future career success (Table VII-3).

Employment patterns did not differ significantly between groups. The majority of the doctorates were employed in colleges or universities, while only half of the nondoctorates were so employed (Table VII-4). A college or university was selected as long-run ideal employer by a proportion of the doctorates roughly equal to that with current academic employment, while slightly more of the nondoctorates hoped to get academic employment in the future (Table VII-5). The nondoctorates' trend toward academic employment was reflected in their responses regarding activities central to long run career objectives (Table VII-6) where over 80 per cent of both the NDEA and comparison group doctorates and over two-thirds of the nondoctorates stated that university or college teaching was going to be a central activity.

In summary, the comparisons between the matched groups did not result in findings markedly different from those already obtained. The use of the comparison group provides limited support to the findings, and the interpretations of these comparisons must be tempered by the possible existence of a selection bias in the comparison group. It is quite possible that the doctoral completion rates for the comparison group are inflated because deans were more likely to include in the list of addresses sent to us students who have been most successful in graduate school rather than those who had withdrawn from graduate school--if only because their records and addresses were more likely to be up-to-date. Consequently, since academic employment is highly dependent on

holding a doctoral degree, the rates of academic employment in the comparison group might also be inflated.

TABLE VII-1

STUDY FIELD AND SEX DISTRIBUTION OF MATCHED GROUPS
OF DOCTORAL STUDENTS
(In percentages)

Characteristic	NDEA-- Matched Respondents	Comparison Group-- Matched Respondents
A. Study Field		
Education	4.4	2.5
Humanities	27.4	20.0
Business and Professions	3.6	0.2
Social Sciences	25.9	24.5
Psychology	2.7	11.2
Biological Sciences	8.4	14.2
Physical Sciences	16.5	20.2
Engineering	10.9	7.2
Total %	100.0	100.0
(N)	(521)	(445)
B. Sex		
Male	86.3	83.3
Female	13.7	16.7
Total %	100.0	100.0
(N)	(526)	(449)

TABLE VII-2

TIME FROM B. A. TO Ph. D. DEGREE: MATCHED GROUPS OF DOCTORATES BY SEX
(In percentages)

Years	Men		Women		Total	
	NDEA	Comparison	NDEA	Comparison	NDEA	Comparison
2 or less	0.4	1.5	-	-	0.3	1.3
3	4.4	4.4	7.4	-	4.6	3.9
4	17.1	9.6	7.4	11.1	16.2	9.8
5	21.1	13.0	14.8	22.2	20.5	14.1
6	18.2	12.6	22.2	8.3	18.5	12.1
7	9.8	12.2	14.8	2.8	10.3	11.1
8	14.5	11.8	7.4	5.6	13.9	11.1
9	5.8	9.6	7.4	2.8	6.0	8.8
10	0.4	2.6	-	5.6	0.3	2.9
11	1.4	3.3	3.7	5.6	1.7	3.6
12	2.5	4.1	3.7	-	2.6	3.6
13 or more	4.4	15.2	11.1	36.1	5.0	17.6
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(275)	(270)	(27)	(36)	(302)	(306)
Mean number of years:	6.49	8.21	7.66	10.90	6.59	8.52
Median years:	6.3	7.6	6.8	8.9	6.3	7.7

TABLE VII-3

IMPORTANCE OF THE Ph. D. AND PROPORTION OF DOCTORATES AMONG MATCHED GROUPS OF DOCTORAL STUDENTS
(In percentages)

Item	NDEA	Comparison
A. Degree of Importance		
Absolutely	61.0	67.8
Very	20.4	19.6
Rather	6.0	4.5
Not very	12.7	8.1
Total %	100.0	100.0
(N)	(520)	(444)
B. Proportion of doctorates	58.3	69.3
(N)	(525)	(446)

TABLE VII-4

TYPE OF CURRENT EMPLOYER FOR MATCHED GROUPS OF DOCTORAL STUDENTS, BY Ph. D. STATUS
(In percentages)

Employer	Ph. D.		No Ph. D.	
	NDEA	Comparison	NDEA	Comparison
College or university	75.9	79.3	51.1	51.8
Junior college or technical institute	0.3	1.7	1.6	8.0
Secondary school	-	-	5.3	4.5
Elementary school	-	-	0.5	0.9
Industry	10.7	7.0	21.1	17.9
Federal government	5.7	5.7	6.3	4.5
State or local government	0.7	1.3	3.2	3.6
Nonprofit organization	4.3	3.0	3.7	7.1
Other	2.3	2.0	7.4	1.8
Total %	100.0	100.0	100.0	100.0
(N)	(299)	(299)	(190)	(112)

TABLE VII-5

IDEAL FUTURE EMPLOYER OF MATCHED GROUPS
OF DOCTORAL STUDENTS
(In percentages)

Ideal Employer	Ph. D.		No Ph. D.	
	NDEA	Comparison	NDEA	Comparison
College or university	75.0	79.6	59.3	62.8
Junior college or technical institute	1.0	0.3	0.9	0.7
Elementary or secondary school	0.3	0.3	3.2	2.9
Industry	7.6	5.5	14.8	15.3
Federal government	2.3	3.2	3.7	2.2
State or local government	0.3	-	0.5	0.7
Nonprofit organization	1.0	1.6	2.3	4.4
Other	2.6	3.2	6.9	2.9
Do not know	9.9	6.1	8.3	8.0
Total % (N)	100.0 (304)	100.0 (309)	100.0 (216)	100.0 (137)

TABLE VII-6

LONG-RUN CAREER OBJECTIVES OF MATCHED GROUPS
OF DOCTORAL STUDENTS
(In percentages)

Career Objective	Ph. D.		No Ph. D.	
	NDEA	Comparison	NDEA	Comparison
University teaching	83.0	87.0	68.0	70.1
Other teaching	4.9	4.8	18.7	14.6
Administration/Management	30.1	23.3	30.6	29.9
Research and Development	66.0	68.3	40.6	44.5
Service to clients	4.2	11.7	11.0	11.7
Sales	0.3	1.6	4.6	3.6
Consultation	25.2	23.0	17.8	19.7
Other	6.5	4.2	10.5	8.0
N[a]	(306)	(309)	(219)	(137)

[a]Base for percentaging of each category.

VIII. SUMMARY AND CONCLUSION

The results of the second phase of this study, based on the experiences of those 1960-61 and 1961-62 Fellowship recipients who responded to the survey questionnaire, indicate that the NDEA Title IV Graduate Fellowship Program has been fulfilling the objectives of its sponsors. A sizeable majority of these NDEA Fellows have successfully completed the doctorate and have entered full-time employment as college or university teachers. Moreover, these NDEA Fellows required less time than other graduate students to complete the doctorate. Finally, even those without the doctorate had contributed to the objectives of the fellowship program in that nearly half were employed in colleges or universities.

Two reasons for the success of the NDEA Title IV Graduate Fellowship Program might be inferred from these data. First, the deans of graduate institutions participating in the program were obviously successful in identifying graduate students committed to academic careers. As Wilson has shown earlier,[1] and as this study has further confirmed, clarity of vocational goals at the beginning of doctoral study contributes greatly to successful completion. The NDEA grant, conditional on occupational objectives centered around college or university teaching, was probably helpful in encouraging students to clarify their goals and realize the importance of the doctoral degree for future career success.

Second, by allowing a large proportion of the Fellows to work full-time on general coursework, and especially on the dissertation,

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[1] Wilson, op. cit., pp. 125ff.

the NDEA grant was successful in reducing the amount of time required to complete the doctorate.

High doctoral completion rates and relatively short duration of doctoral studies were the only features which distinguished NDEA recipients, particularly those who had completed fellowship tenure, from their fellow students. With the exception of these two factors, the NDEA Fellows were similar to other doctoral candidates in that men were more likely than women to complete the doctorate and complete it in a shorter time; "early commitment" as indicated by the similarity of undergraduate major and doctoral field was related to doctoral completion; students in the Natural Sciences were more likely to receive the doctorate than students in other fields, except in Education, and students who had previously earned a master's degree were less likely to receive the doctorate. Completing fellowship tenure, and starting the NDEA award as a first-year student enhanced doctoral completion. Students with only one year of support were less likely to complete their studies than those who received two or three years of support.

To take a broader look at some of the policy implications of the study findings, it is perhaps necessary to depart from the original policy objectives of the NDEA program and re-examine outcomes in the light of the redefinition of priorities which has taken place in recent years. On the one hand, concern with the need for Ph.D. holders to staff colleges and universities has largely abated and has, in fact, most recently been replaced with concern about an oversupply, at least in some fields.[2] On the other hand, the survey findings throw some light

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[2]See in particular the Manpower Report of the President, prepared by the U.S. Department of Labor, March 1970, pp. 160-167; also, "Employment Status of Recent Recipients of the Doctorate," Science, 68, 22, May 1970, pp. 930-939.

on other current concerns of higher priority. These include making available more talented personnel to serve in the field of education, improving the access at all levels of education for persons of low socioeconomic and/or low minority origin, providing equal study and employment opportunities for women, and staffing the newly emerging junior and community colleges. The study also sheds some additional light on the broad question which perennially troubles policy-makers: is financial support an important mechanism for promoting student retention and degree completion or are there other, more decisive factors which affect student behavior with regard to degree completion?

Of course, these problems are interrelated and must be answered jointly. Let us first take the area of differential access to graduate study and degree completion by students of various socioeconomic backgrounds. Our findings suggest that the structure of the NDEA program, concentrated in nonelite institutions and providing funds for students in a wide range of fields, including education, will reach a higher proportion of students of low socioeconomic origin than is found among graduate students in general in this country, despite the fact that there was no "financial need" consideration in the award of the Fellowship. Furthermore, the data suggest that the low socioeconomic status student is somewhat more likely to complete his degree requirements and ultimately obtain the degree: Fellows who resign their Fellowship or withdraw from the degree program after 3 years of tenure are disproportionately drawn from high income families, especially families where the father is a businessman or a professional (other than educator). This finding suggests that giving Fellowships to students from low-income families is a better investment. However, before recommending

policies along these lines, it is necessary to realize that most important of all seems to be a constellation of motivational factors having to do with clear career goals, interest in teaching and academic employment, and early commitment to a field of study. We believe that this constellation is perhaps found more often nowadays among students from low-income families, whereas the upper-middle class student is less apt to crystallize his long range goals at an early age. But there are many exceptions in both camps, and a socioeconomic criterion alone would not guarantee 100 per cent program success on the one hand, and might screen out desirable candidates on the other.

It is clear from our data that program outcomes for women leave much to be desired from the point of view of the federal sponsor, since a higher proportion of men than of women Fellows tend to complete the doctorate. It might thus be argued that more Fellowships should be given to men, especially now that resources are becoming scarce. However, recent thinking suggests that we may be reaching a turning point. Perhaps if more grants are allocated to women students, particularly the type of grants that would allow full-time enrollment, the "critical mass" point will be reached, where greater emphasis among women on study persistence--especially among married graduate students--will become the norm rather than the exception. It is clear from this survey--as from others[3]--that once the doctorate is obtained, there is considerable pay-off for women in terms of academic employment.

The academic area which clearly benefits most from the NDEA grant is the field of Education. Generally, the graduate students in this field are older (with a maximum time lapse between the baccalaureate

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[3]Astin, op. cit., pp. 34ff.

and graduate enrollment), study only part-time, and require the longest time to obtain the doctorate. In our sample, however, the students in Education were more likely to obtain their doctorate in a period comparable to those in the Natural Sciences than to those in the Social Sciences. This accomplishment was largely made possible by the full-time schedules supported by the NDEA grants.[4] Since graduate support programs are relatively rare in the field of Education, and the need for well trained personnel enormous, it would appear advisable to increase the number of NDEA awards in this field.

If rapid Ph.D. completion remains a chief goal of a program such as the one granting NDEA Fellowships, it would also seem advisable to adjust the length of the award to the completion patterns observed in different fields. For instance, the faster rate of degree completion typical for those in the Natural Sciences allows the student to complete most of the doctoral requirements before completing Fellowship tenure, while students in fields where degree completion typically takes much longer, such as the Humanities and the Social Sciences, are compelled to work only part-time, or sporadically, on their dissertations. Dean Arlt, in his study of first NDEA doctorates,[5] recommended the extension of the NDEA grant to allow more full-time work on the dissertation. A one-year extension of the grant to those students who have completed a majority of the doctoral requirements during Fellowship tenure would be especially useful in the Social Sciences and the Humanities where students are typically not as far along toward the doctorate as those in

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[4]Folger, Astin, and Bayer (op. cit., p. 192) state that a full-time schedule would reduce the average duration of doctoral completion in Education by eight years. Our results support this statement.

[5]Gustave Arlt, "The First Ph.D.'s Under Title IV, "Journal of Higher Education, XXXIV, No. 5 (May 1963).

other disciplines by the time they have exhausted their three-year tenure. At this point, the necessity of employment and the availability of academic employment without the doctorate contribute to a longer period of doctoral completion than among candidates in other disciplines.

But this recommendation presupposes a policy seeking the continued growth of the Ph.D. program. There are other data in this study--in particular, the relatively high level of employment of unfinished Ph.D.'s in colleges and universities--which suggest the desirability of alternate, shorter support programs. The master's degree is apparently still acceptable in many institutions, at least for entering teachers in the lower ranks. Especially for the graduate student whose interest in a Ph.D. program is not yet firm, the availability of attractive short-term support programs would have many advantages. From the point of view of program sponsors, the availability of other options for such students would also increase the likelihood of recruiting fully "committed" candidates for three-year Ph.D. Fellowship programs.

APPENDIX A

TABLES

TABLE A-1

REGIONAL DISTRIBUTION OF NDEA RECIPIENTS, BY STUDY FIELD
(In percentages)

	Education	Humanities	Business and Professions	Social Sciences	Psychology	Biological Sciences	Physical Sciences	Engineering	Total
A. 1960-61 NDEA									
New England	-	5.7	-	10.0	-	8.0	8.6	1.7	6.4
Middle Atlantic	3.2	13.6	-	10.4	[3]	-	7.0	26.1	10.8
East North Central	33.9	12.1	32.1	17.8	[5]	7.0	8.0	22.7	15.6
West North Central	9.7	12.1	-	11.6	[3]	20.0	13.4	8.4	12.1
South Atlantic	11.3	14.0	10.7	16.2	[1]	21.0	19.8	15.1	16.0
East South Central	8.1	7.5	-	6.6	-	15.0	9.6	1.7	7.4
West South Central	-	14.0	50.0	5.8	[3]	6.0	10.7	10.9	10.4
Mountain	25.8	4.2	-	7.3	-	14.0	12.8	7.6	9.0
Pacific	8.1	17.0	7.1	14.3	[4]	9.0	10.2	5.9	12.3
Total %	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0
(N)	(62)	(265)	(28)	(259)	[19]	(100)	(187)	(119)	(1039)

TABLE A-1--Continued

	Education	Humanities	Business and Professions	Social Sciences	Psychology	Biological Sciences	Physical Sciences	Engineering	Total
B. 1961-62 NDEA									
New England	4.2	7.4	4.2	10.0	21.4	7.6	10.2	3.0	8.0
Middle Atlantic	7.0	12.3	16.7	17.2	7.1	2.5	10.8	23.7	13.2
East North Central	38.0	11.5	33.3	16.4	21.4	9.2	7.0	20.7	15.3
West North Central	7.0	13.1	4.2	9.2	17.9	15.1	11.3	11.1	11.4
South Atlantic	8.5	13.1	12.5	16.4	10.7	15.1	24.7	9.6	15.3
East South Central	12.7	9.4	-	8.8	-	13.4	7.0	1.5	8.0
West South Central	1.4	14.3	12.5	5.2	7.1	10.1	10.2	6.7	8.9
Mountain	15.5	3.7	-	4.0	7.1	15.1	10.2	14.1	8.3
Pacific	5.6	15.2	16.7	12.8	7.1	11.8	8.6	9.6	11.5
Total %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(71)	(244)	(24)	(250)	(28)	(119)	(186)	(135)	(1057)

TABLE A-2

REGION OF HIGH SCHOOL RESIDENCE AND CURRENT RESIDENCE
FOR NDEA RECIPIENTS
(In percentages)

Region	1960-61 NDEA			1961-62 NDEA		
	Men	Women	Total	Men	Women	Total
A. High School Residence						
New England	5.5	9.7	6.0	5.9	7.4	6.0
Middle Atlantic	16.7	20.1	17.2	18.4	27.0	19.4
East North Central	19.0	14.9	18.4	20.4	14.8	19.7
West North Central	13.5	9.0	12.9	10.5	13.1	10.8
South Atlantic	12.5	12.7	12.5	13.1	9.0	12.6
East South Central	5.7	6.0	5.7	6.2	6.6	6.2
West South Central	10.7	8.2	10.4	10.1	8.2	9.8
Mountain	7.8	6.7	7.6	7.4	4.9	7.1
Pacific	8.7	12.7	9.2	8.2	9.0	8.3
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(875)	(134)	(1009)	(904)	(122)	(1026)
B. Current Residence						
New England	7.2	8.6	7.4	7.0	10.0	7.4
Middle Atlantic	13.9	18.7	14.5	16.9	20.0	17.3
East North Central	15.8	16.5	15.9	17.1	22.5	17.7
West North Central	10.2	7.9	9.9	7.7	6.7	7.6
South Atlantic	16.6	16.5	16.6	17.6	11.7	16.9
East South Central	4.9	6.5	5.1	6.8	6.7	6.8
West South Central	9.9	7.2	9.6	7.9	3.3	7.4
Mountain	6.9	4.3	6.6	6.9	5.8	6.8
Pacific	14.6	13.7	14.4	12.0	13.3	12.2
Total %	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(865)	(139)	(1004)	(897)	(120)	(1017)

TABLE A-3

REGION OF HIGH SCHOOL RESIDENCE AND CURRENT RESIDENCE
BY Ph. D. STATUS: NDEA MEN
(In percentages)

Region	1960-61 Men		1961-62 Men	
	Ph. D.	No Ph. D.	Ph. D.	No Ph. D.
A. High School Residence				
New England	5.1	6.2	6.6	4.5
Middle Atlantic	16.5	16.7	18.2	18.7
East North Central	18.5	19.9	18.0	24.2
West North Central	13.9	12.7	12.1	7.9
South Atlantic	12.3	12.7	11.5	15.7
East South Central	5.6	5.9	6.3	6.0
West South Central	10.4	11.4	10.5	9.4
Mountain	8.1	7.2	9.3	4.2
Pacific	9.5	7.2	7.5	9.4
Total %	100.0	100.0	100.0	100.0
(N)	(568)	(306)	(572)	(331)
B. Current Residence				
New England	6.6	8.3	7.6	6.1
Middle Atlantic	13.1	15.0	17.2	16.5
East North Central	16.0	15.7	16.5	18.0
West North Central	10.5	9.7	8.8	5.8
South Atlantic	16.0	18.0	16.2	20.1
East South Central	5.7	3.3	7.2	6.1
West South Central	10.3	9.3	8.6	6.7
Mountain	7.4	6.0	6.9	7.0
Pacific	14.5	14.7	11.1	13.7
Total %	100.0	100.0	100.0	100.0
(N)	(564)	(300)	(569)	(328)

TABLE A-4

REGION OF HIGH SCHOOL RESIDENCE AND CURRENT RESIDENCE
BY Ph. D. STATUS: NDEA WOMEN
(In percentages)

Region	1960-61 Women		1961-62 Women	
	Ph. D.	No Ph. D.	Ph. D.	No Ph. D.
A. High School Residence				
New England	9.1	10.1	9.5	6.2
Middle Atlantic	21.8	19.0	28.6	26.2
East North Central	12.7	16.5	11.9	16.2
West North Central	5.5	11.4	14.3	12.5
South Atlantic	14.5	11.4	4.8	11.2
East South Central	3.6	7.6	7.1	6.2
West South Central	16.4	2.5	4.8	10.0
Mountain	5.5	7.6	4.8	5.0
Pacific	10.9	13.9	14.3	6.2
Total % (N)	100.0 (55)	100.0 (79)	100.0 (42)	100.0 (80)
B. Current Residence				
New England	5.4	11.0	11.4	9.2
Middle Atlantic	16.1	19.5	13.6	23.7
East North Central	19.6	14.6	31.8	17.1
West North Central	7.1	8.5	6.8	6.6
South Atlantic	19.6	14.6	-	18.4
East South Central	7.1	6.1	11.4	3.9
West South Central	8.9	6.1	2.3	3.9
Mountain	5.4	3.7	4.5	6.6
Pacific	10.7	15.9	18.2	10.5
Total % (N)	100.0 (56)	100.0 (82)	100.0 (44)	100.0 (76)

TABLE A-5

DATE OF BACCALAUREATE AND OF M. A. FOR NDEA AND COMPARISON GROUP RESPONDENTS

Date of Degree	1960-61 NDEA	1961-62 NDEA	Comparison Group
A. Date of Baccalaureate			
1930-39	0.4	0.3	0.9
1940-49	1.5	2.0	8.4
1950-59	29.3	22.2	46.6
1960 or later	65.5	73.1	41.2
NA	3.3	2.4	2.9
Total %	100.0	100.0	100.0
(N)	(1039)	(1057)	(451)
B. Date of M. A.[a]			
1930-39	-	0.1	-
1940-49	0.1	0.2	1.6
1950-59	5.2	3.7	18.2
1960 or later	62.0	64.3	61.9
NA	1.9	1.0	1.1
Does not apply	30.8	30.7	17.3
Total %	100.0	100.0	100.0
(N)	(1039)	(1057)	(451)

[a]In Table II-2, the percentages of students with master's degrees before the 1960-1961 or 1961-62 academic years are higher than those reported here. The difference is due to the inclusion of "No Answers" and "Does Not Apply" in this tabulation.

TABLE A-6

ZERO-ORDER[a] CORRELATIONS OF IMPORTANT VARIABLES: NDEA FELLOWS ONLY

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1. 3-year NDEA award	-																									
2. 2-year NDEA award	-.93	-																								
3. 1-year NDEA award	-.33	-	-																							
4. Tenure completion	-	-	-.09	-																						
5. Pre-NDEA graduate training	-.33	.32	.08	-	-																					
6. Leaving the NDEA institution	-	-	-	-.39	-	-																				
7. Natural Sciences[b]	-	-	-	.12	-	-	-																			
8. Social Sciences[c]	-	-	-	-.21	-.06	-	-.58	-																		
9. Business and Professions	-	-	-	-	-	-	-.11	-.14	-																	
10. Humanities	-	-	-	.09	-	-	-.32	-.38	-.07	-																
11. Education	-.08	.09	-	-	.15	-	-.18	-.22	-	-.12	-															
12. Full-time course work	-	-	-.08	.12	-	-.16	-	.06	-	-	-	-														
13. Full-time dissertation work	-	-	-	.19	-	-.10	.38	-.27	-	-.14	-	.22	-													
14. M. A.	-.11	.10	-	-.19	.17	.13	-.14	.11	-	-	.10	-.06	-.11	-												
15. Ph. D.	-.07	.09	-	.38	.10	-.26	.34	-.40	-	-	.10	.13	.46	-.22	-											
16. Duration of Ph. D. completion	-.25	.22	.11	-	.54	-	-.06	-.06	-	.09	.11	-.07	-.13	.11	.16	-										
17. Sex	-	-	-	-.09	-	-	-.16	.11	-	.08	-	-	-.16	-	-.18	-	-									
18. Father's occupation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.06	-								
19. Father's education	-	-	-	-	-	-	-.08	.08	-	-	-.06	-	-	-	-	-	.11	.47	-							
20. Mother's education	-	-	-	-	-	-	-.06	.07	-	-	-.07	-	-	-	-	-	.11	.32	.59	-						
21. Parental income	-	-	-	-	-.07	-	-	.09	-	-	-.09	-	-	-	-	-	-	.47	.40	.36	-					
22. Similarity of B. A. and Ph. D. fields	-	-	-	.22	-	-	.37	-.38	-	.15	-.14	-	.16	-.12	.32	-	-.11	-	-	-	-	-				
23. Importance of Ph. D.	-	-	-	.38	.07	-.14	.16	-.26	-	.10	.06	-	.24	-.15	.49	.09	-.08	-	-	-	-.09	.22	-			
24. Academic employment	-	-	-	.20	.06	-	-.18	-	-	.23	.07	-	-	-	.16	.08	.12	-	.07	-	-	-	.40	-		
25. Satisfaction scale	-	-	-	-	-	-	-	-	-	-.10	.06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
26. Adequacy scale	-	-	-	-	.06	-	-	-.13	-	-	.10	-	.20	-	.29	-	-	-	-	-	-	.06	.18	.07	-	-
27. Difficulty scale	-	-	-	-.07	-	.10	-.16	.13	-	-	-	-.17	-.30	.06	-.37	.08	-	-	-	-	-	-.08	-.16	-	-	-.44

[a] $r = p < .05$.

[b] Natural Sciences = Biological and Physical Sciences, and Engineering.

[c] Social Sciences includes Psychology.

TABLE A-7

ZERO-ORDER[a] CORRELATIONS OF IMPORTANT VARIABLES: COMPARISON GROUP RESPONDENTS

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. Graduate experience before 1960-61	-																					
2. Natural Sciences[b]	-	-																				
3. Social Sciences[c]	-.07	-.66	-																			
4. Business and Professions	.06	-	-	-																		
5. Humanities	.09	-.44	-.31	-	-																	
6. Education	.12	-.16	-.11	-	-.08	-																
7. Full-time coursework	-.09	.11	-	-	-.15	-	-															
8. Full-time dissertation work	-.06	.12	-.06	-	-.07	-	.43	-														
9. M. A.	.26	.10	-.15	-	-	.07	-.09	-.14	-													
10. Ph. D. completion	.21	-	-	-	-.08	-	.19	.40	-.11	-												
11. Duration of Ph. D. completion	.61	-.13	-	-	-	.20	-.10	-.10	.18	.27	-											
12. Sex	-.06	-.08	-	-	.13	-	-	-.07	.06	-.19	-	-										
13. Father's occupation	-.07	-.18	.14	-	-	-	-	-.07	-	-	-	.07	-									
14. Father's education	-.09	-.10	-	.08	.10	-.06	.07	-	-.09	-.06	-	.15	.45	-								
15. Mother's education	-.16	-.08	-	.06	.07	-	-	-	-	-	-.08	.16	.30	.55	-							
16. Parental income	-.18	-.08	-	.06	.07	-	-	-	-.07	-	-.16	.11	.29	.40	.27	-						
17. Similarity of B. A. and Ph. D. fields	-	-	-	-	.14	-.30	-	.13	-	.18	-.13	-.16	-.07	-	-	-	-					
18. Importance of Ph. D.	.16	-.11	.15	-	-	-	-	.24	-.15	.46	.17	-.09	-	-	-	-	.11	-				
19. Academic employment	.10	-.32	.21	-	.17	-	-.06	-	-	.12	.08	-	-	-	-	-	-	.34	-			
20. Satisfaction scale	-	-	-	-	-	-	-	-	.09	-	-	.06	-	-	-	-	-	-	-	-		
21. Adequacy scale	-	-	-	.06	-	-	.12	.21	-	.27	-	-	.09	-	.06	-	-	.08	-	-.08	-	
22. Difficulty scale	-	-.10	-	-.07	.17	-.07	-.31	-.27	-	-.28	.07	-	-	-	-	-	-	-.06	-	.06	-.39	-

[a] $r = p < .05$.

[b] Natural Sciences include Biological and Physical Sciences and Engineering.

[c] Social Sciences include Psychology.

APPENDIX B

METHODOLOGY

Study Design and Conduct of Survey

The major purpose of the second phase of the NDEA Title IV Fellowship program study was to evaluate the success of the program in its objectives of promoting more rapid completion of doctoral programs, increasing the number of students working toward a doctoral degree in preparation for undergraduate and graduate teaching, and increasing the numbers entering the teaching profession. Relevant second-hand information had already been gathered and examined in the first phase of the study; the basic task in the second phase of the study was to collect data pertinent to the program objectives directly from the NDEA Fellowship recipients.

Selection of Respondents

Participants in the second and third years (1960-61 and 1961-62) of the NDEA Fellowship program were chosen as study subjects; the time lapse between receipt of the NDEA award and our collection of data would have given these Fellows enough time to complete predoctoral studies and to embark upon postdoctoral careers. The Fellows from the first year of the Title IV program (1959-60) were excluded from study because fewer grants had been awarded during the first year of the program than in the subsequent years, the rates of resignations among the Fellows were higher in the first year than in the following years, and because the administration of the program became better defined after the first year. And, although the major focus of the second phase of the study was on

the two groups of NDEA grantees, it was also decided to work with a comparison group of graduate students so that the effectiveness of the NDEA program in achieving its goals could be more rigorously evaluated.

The establishment of this comparison group was a matter of some concern during the early stages of the second phase. For purposes of this study, an experimental design with a rigorous control group would have been ideal. However, such an approach was impossible for it would have required random assignment of NDEA Fellowships whereas NDEA awardees were chosen by the deans on the basis of their academic excellence as well as their commitment to teaching and to the attainment of the doctoral degree. Extensive discussions about the feasibility and desirability of a comparison group were conducted by the BSSR with the members of the Office of Program Planning and Evaluation, representatives of the Bureau of Higher Education, and a number of knowledgeable university deans, including Dean Gustave Arlt of the Council of Graduate Schools, Dean Charles T. Lester of Emory University, and Dean Herbert D. Rhodes of the University of Arizona.

It was recognized throughout these discussions that any obtainable comparison group could not meet the strict criteria of a control group and would provide only suggestive qualitative insights rather than statistically meaningful differences. Without a comparison group, however, it would be impossible to discuss the effect of the NDEA program in terms of the relative rates of progress of NDEA recipients and other doctoral candidates in the same academic programs. In the end, all parties--deans, Office of Education personnel, and BSSR personnel--concurred that the major focus would be on the NDEA Fellows but that to permit suggestive comparisons, a comparison group of approximately 1,000 other candidates

who entered the same doctoral programs in 1960 would be included in the study.

In order to obtain a group comparable to the 1960-61 NDEA recipients, all graduate departments with 1960-61 NDEA awardees were requested to provide a list of all other students who both entered their department in 1960 and intended to obtain the doctorate eventually. Since some graduate departments do not distinguish between those intending to obtain the doctorate and master's candidates, it was not possible to obtain comparison groups from all of the 132 institutions participating in the NDEA program in 1960; only 63 of the graduate schools supplied lists of comparable graduate students.

Since the major focus of the study was on NDEA grantees, it was decided to collect data from all of the 1960-61 and 1961-62 NDEA Fellowship recipients, a total of 3,000 students. Letters were sent to the graduate deans of the 141 institutions which participated in the NDEA program in 1960-61 and 1961-62, describing the study, presenting a summary of the Phase I findings, and requesting addresses for NDEA Fellows and for comparison group students. The deans cooperated well, and addresses were received from all but three institutions: 2,518 for the NDEA group and 1,141 for the comparison group. A search for 482 missing NDEA addresses was conducted: 74 addresses were located through the Register of Earned Doctorates of the National Academy of Sciences, and 391 were supplied by the undergraduate institutions of the remaining Fellows, yielding a total of 2,983 addresses for the initial mail-out. Ten NDEA Fellows were found to be deceased, and addresses for seven could not be located.

Survey Questionnaires

The survey questionnaire was designed to provide information on the academic and demographic background of the respondents, on graduate school experience, attitudes and expectations regarding both doctoral studies and postdoctoral careers and finally, postdoctoral employment. A small pretest was conducted with 1962-63 NDEA recipients and a comparable group of doctoral candidates from Washington area universities. On the basis of pretest results, the questionnaire was revised and submitted to the Office of Education for Bureau of the Budget approval. The copy of the final version of the survey questionnaire is presented in Appendix C.

Mailing Procedures

On March 10, 1969, a total of 4,124 questionnaires were mailed (2,983 to NDEA Fellows and 1,141 to comparison group students) with a cover letter explaining the purpose of the study and requesting cooperation. During the first two weeks after the mail-out, it became apparent that a number of the addresses had to be updated: twelve per cent of the NDEA questionnaires and 19 per cent of the comparison group questionnaires were returned, marked "undelivered." However, since it was reasonable to assume that most of the addresses provided by the deans of the graduate schools were at least eight years old, we had expected a large nondelivery rate, and had instructed the Post Office to forward these questionnaires whenever possible, and inform us of any address changes. The Post Office provided 305 new addresses, some of which still proved to outdated.

A second address search was undertaken. The Alumni Offices of the undergraduate institutions of 188 NDEA Fellows whose addresses had been found to be incorrect were contacted and 55 new addresses were secured.

Sixty-five additional addresses of NDEA recipients who had obtained their doctorates were located through the Register of Earned Doctorates of the National Academy of Sciences. Neither of these sources were helpful with the comparison group students since we did not know where they had received their B. A.'s nor which of these students had obtained doctorates. As it turned out, there was no way to reach members of the Comparison group except by relying on the returns from the Post Office. At the end of the second address search, we were without addresses for 180 members of our study cohort (mostly Comparison group students).

First follow-up.--Double-postcards were used as a first follow-up, asking respondents whether or not they had received the questionnaire mailed to them approximately fifteen days ago, and when they expected to return it. A total of 2,448 postcards were mailed to 1,780 NDEA Fellows and to 668 comparison group students who had failed to respond to the initial survey questionnaire. Twenty-seven per cent of the NDEA Fellows and 26 per cent of the comparison group students returned the postcards, some promising a date of return, some asking for a new questionnaire, some requesting information, and some refusing to complete the questionnaire.

New questionnaires were immediately mailed to those requesting them, and letters were sent to others, attempting to answer their questions and to secure their cooperation. The estimated increase in the questionnaire completion rate as a result of the first follow-up was approximately 10 per cent for the NDEA group, and 8 per cent for the comparison group.

Second follow-up.--Separate form letters were prepared for (a) respondents who had returned postcards but had not returned survey questionnaire as promised, and (b) respondents who had returned neither the postcard nor the questionnaire. In the beginning of April, 1969, 1,706 letters and questionnaires were sent to those who had responded to the

first follow-up by returning the postcard (185), and to those 1,521 respondents who had not. Later, an additional 501 letters and questionnaires were mailed to those respondents who either answered the postcard late, or for whom new addresses were found.

The estimated increase in the response rate as a result of the second follow-up was 11 per cent for the NDEA group and 5 per cent for the comparison group within the first two weeks after mail-out.

Third follow-up.--In early May, 1,565 letters and questionnaires were sent to those who had failed to respond to the survey. Those who had responded to the first follow-up received personalized letters, while the others received form letters.

In late May, several discussions regarding the low return rates took place with staff members of the Office of Program Planning and Evaluation. To overcome some of these problems, which seemed to result in part from undelivered mail, and partly from a reluctance on the part of some segments of the study population to participate in the study, the BSSR agreed to try additional ways of updating addresses, and to make a final attempt to reach the NDEA nonrespondents. Several of the new attempts to locate addresses proved to be futile: e.g., the Education Directory in Marion, Ohio; the Association of American University Professors in Washington, D. C.; and Tracer's Company of America in New York. Nevertheless, some new addresses were secured and the fourth follow-up procedure then undertaken.

Fourth follow-up.--In late June, 1,358 questionnaires and accompanying letters were mailed via certified mail, with return-receipt requested, in hand-addressed manila envelopes which did not identify the study with the previous BSSR mailings. Three types of accompanying letters were prepared:

(a) for those respondents who had never answered any of our letters, (b) for those who had promised to return the questionnaire but had not, and (c) to those NDEA Fellows who had refused to participate in the survey. In each case, the BSSR cover letter was accompanied by a letter from Dr. Joseph Froomkin, then Assistant Commissioner for Program Planning and Evaluation, emphasizing the importance of the study and requesting participation. Table B-1 presents the response rates obtained after each of the follow-ups.

After the fourth follow-up, an acceptable response rate of 69.2 per cent for the 1960-61 NDEA Fellows, 70.4 per cent for the 1961-62 NDEA Fellows, and 39.5 per cent for the comparison group students was obtained. One-fourth of the comparison group respondents, and less than one-fifth of the NDEA Fellows were not reached due to incorrect addresses. The rate of nonacceptable questionnaires among the comparison group was rather high. As shown in Table B-2, half of these questionnaires were discarded because the respondents did not meet the comparison group criterion of having entered graduate school (or having enrolled in a doctoral program) in the 1960-61 academic year. One-fourth of the comparison group students were non-U. S. citizens, and some were NDEA recipients. In the NDEA group, over one-third of the nonacceptable questionnaires were due to refusals, about one-fourth due to wrong-year NDEA recipients, and about one-fifth due to incorrect or unreliable questionnaire completion.

About 13 per cent of the students in the NDEA group and in the comparison group did not respond to the survey questionnaire at all. Since we have no background data on the comparison group students, there was no way of determining who the nonrespondents were.

TABLE B-I

RESPONSE RATES TO INITIAL MAILINGS AND FOLLOW-UPS

Mailing Procedure and Date	1960-61 and 1961-62 NDEA FELLOWS					Comparison Group				
	Total Mailed	Returns			No Returns	Total Mailed	Returns			No Returns
		A[b]	NA[c]	Wrong Address			A	NA	Wrong Address	
Initial March 10-12	2983	815 27.3%	20 0.7%	371 12.4%	1777 59.6%	1141	211 18.5%	48 4.2%	212 18.6%	670 58.7%
Follow-ups:										
1 (postcards) March 28	1780	1209 40.5%	37 1.2%	419 14.0%	1318 44.2%	668	318 27.9%	76 6.7%	230 20.2%	517 45.3%
2 April 10-12	1636	1647[a] 51.6%	67 2.2%	418 14.0%	958 32.1%	569	369 32.3%	117 10.3%	250 21.9%	405 35.5%
3 May 2	1100	1841 6.17%	75 2.5%	343 11.5%	724 24.3%	465	426 37.3%	187 16.4%	257 22.5%	271 23.8%
4 June 20	880	2096 70.2%	98 3.2%	415 13.9%	380 12.7%	478	451 39.5%	258 22.6%	282 24.7%	150 13.1%

[a]After the second follow-up, it was found that three of the comparison group students were "alternate" NDEA students, i.e., those who replaced the Fellows who resigned from the program before starting graduate school; they then were transferred to the NDEA group, increasing the base for NDEA students to 2,986.

[b]A = Acceptable questionnaires.

[c]NA = Not acceptable questionnaires.

TABLE B-2

DISTRIBUTION OF NONACCEPTABLE QUESTIONNAIRES
(In percentages)

	NDEA Fellows	Comparison Group
Wrong-year graduate enrollment	26.3	51.5
Refusal to participate	35.9	7.8
Non-U. S. citizens	3.1	24.0
Resigned before enrolling in graduate school	8.4	-
Deceased	3.1	0.5
Duplicates	2.1	-
NDEA recipients or duplicates	-	14.7
Other (incomplete, unreliable)	21.1	1.5
Total %	100.0	100.0
(N)	(95)	(258)

A comparison with NDEA Phase I tables indicated that slightly more males than females responded to the survey questionnaire: 70 per cent and 65 per cent respectively (Figure B-1). The highest response rates were obtained from NDEA Fellows in the fields of Biology and Psychology (93%), followed by those in Physics and Engineering (76.9%). By contrast, only two-thirds of the Fellows in the fields of Education, Humanities Social Sciences, and Business responded to the survey questionnaire[1] (Figure B-2).

[1]These figures refer to acceptable questionnaires and not to the total response rates.

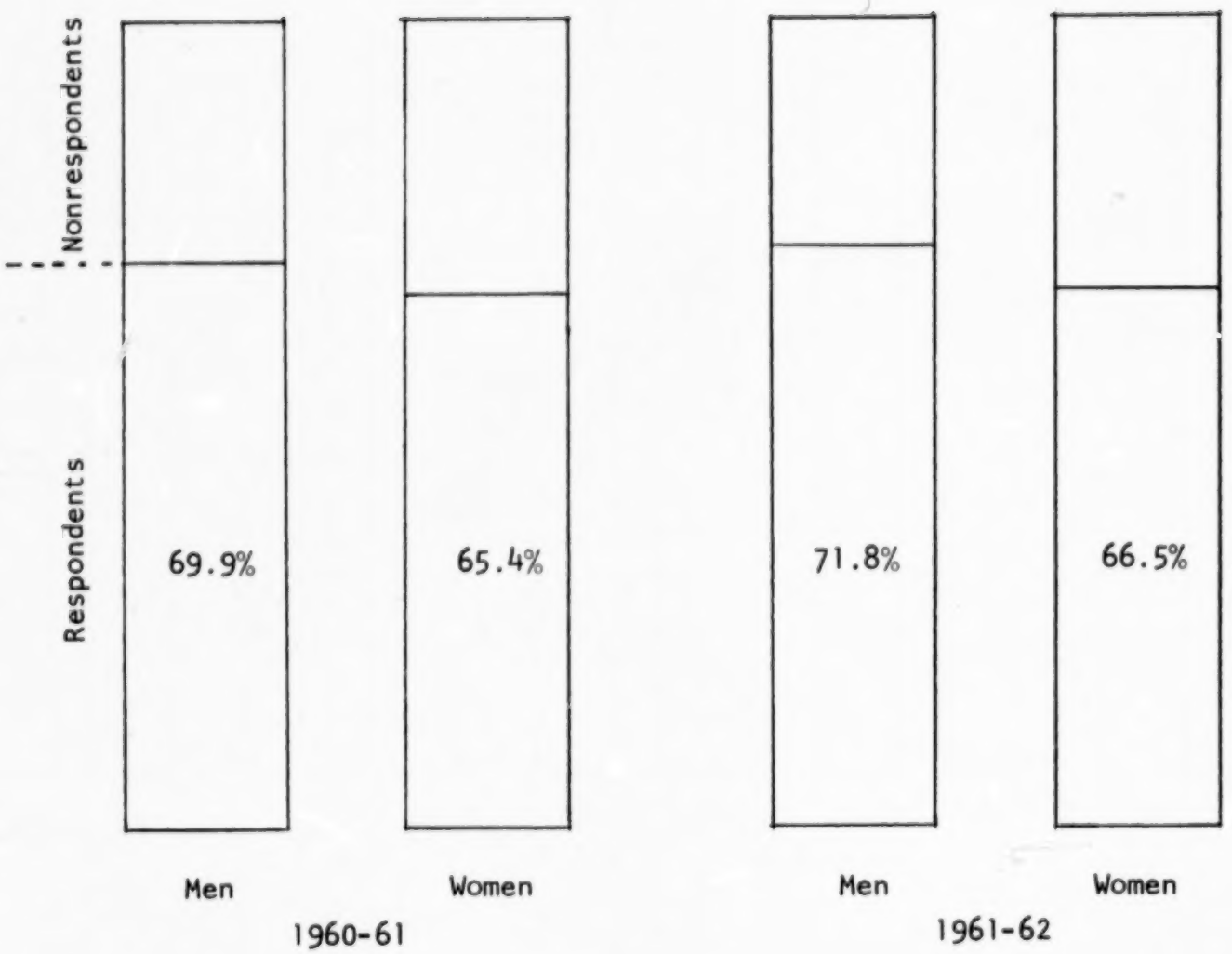

FIGURE B-1

RESPONSE RATES AMONG NDEA FELLOWS BY SEX AND YEAR OF AWARD

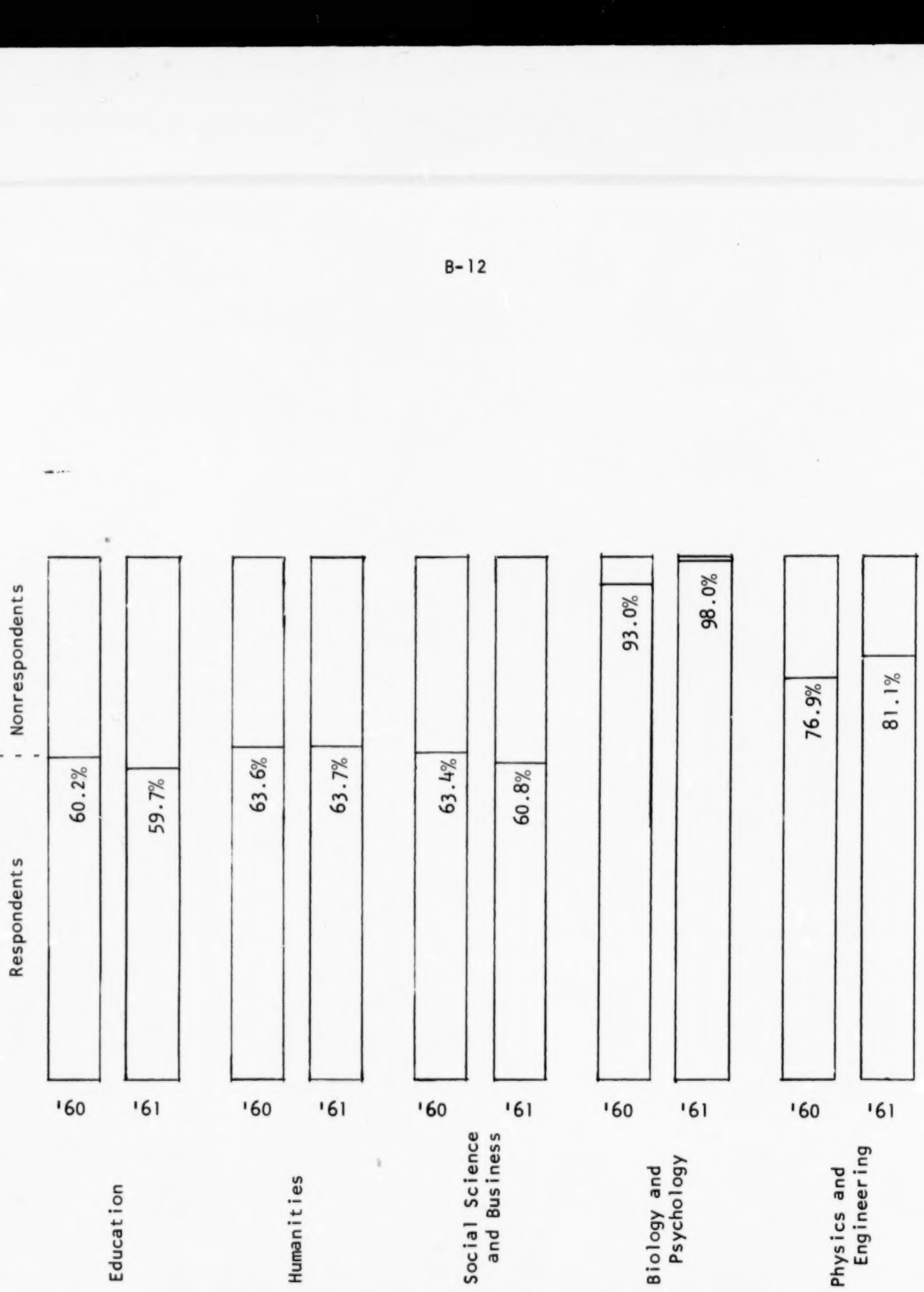

FIGURE B-2

RESPONSE RATES AMONG NDEA FELLOWS BY MAJOR ACADEMIC FIELDS AND YEAR OF AWARD

Finally, acceptable questionnaires were obtained from only half of the Fellows in each academic year who resigned from the program before completing Fellowship tenure.

As to the issue of a nonresponse bias, we are not concerned about possible nonresponse bias in the NDEA group, since the response rate in that group has reached a respectable level, and nonresponse is distributed equally between those who are presumably unwilling to cooperate (although this is not established, since many of these assumed nonrespondents may never have received the survey questionnaire) and the "unreached" for whom we had no valid addresses. While we might assume that those who are unwilling to cooperate are perhaps less likely than respondents to have embarked on careers consonant with the NDEA goals, no such assumption need be made concerning the highly mobile group whom we were unable to locate. Similarly, one-fourth of the comparison group was not reached due to incorrect addresses, while over one-fifth did not meet the eligibility criteria, although they had returned completed questionnaires.[2]

Summary and Recommendations

In summary, the three major sources of difficulty with response rates were inappropriate selection of members of the comparison group by the deans, lack of valid current addresses and, apparently, a considerable reluctance on the part of some respondents to participate in questionnaire surveys. Looking back now, we feel that it would have been wise to:

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[2]See Sections I and VII for discussions of some of the difficulties involved in the use of the comparison group.

1. enlarge the initial comparison group, allowing for inclusion of "ineligibles" among the deans' name selections, as well as a sizable proportion of students who were not American citizens;

2. budget larger amounts of time and money for tracing of NDEA Fellows and students from the comparison group; and

3. introduce at an earlier stage high-pressure response-promoting techniques such as certified mail, hand-written envelopes, personalized letters, and "official" OE cover letters.

Regression Analyses and Scoring of Regression Factors

Stepwise multiple regression analyses were used to determine the factors contributing to doctoral completion, to the duration of doctoral completion, and to academic employment. Multiple regression analysis allows one to simultaneously control a number of variables when examining the relation of any one to the dependent variable. It is useful in checking the adequacy of any particular causal model or in helping develop, in an exploratory fashion, alternative models, particularly in an area where the theoretical structure of causation may not be clearly known.[3] Recently, however, numerous writers have criticized the use of multivariate analysis without a theoretically justified model.[4] It is

---

[3]H. H. Blalock, Jr., "Making Causal Inferences for Unmeasured Variables from Correlations Among Indicators, "American Journal of Sociology, 1963, LXIX, 53-62, and "Correlation and Causality: The Multivariate Case," Social Forces, 1961, 39, 246-251.

[4]Glen G. Cain, and Harold W. Watts, "Problems in Making Policy Inferences from the Coleman Report," American Sociological Review, 1970, 39, 228-241; James S. Coleman, "Reply to Cain and Watts," American Sociological Review, 1970, 39, 242-248; and Dennis J. Aiger, "A Comment on Problems in Making Inferences from the Coleman Report," American Sociological Review, 1970, 39, 249-252.

undeniable that the introduction of numerous variables generally complicates the conceptual problem; however, we feel that the variables we chose to use in the regression analyses had either been shown by others to relate to the criterion (e.g., sex, study fields, field continuity, etc., to doctoral completion), or could reasonably be assumed to relate to it (e.g., difficulties during predoctoral studies and doctoral completion). We were interested not so much in causal inferences as we were in establishing the relative strength of each variable which might be overestimated in a univariate analysis.

Two types of variables were constructed for the regression analyses: "dummy" or dichotomized variables[5] and scale or continuous variables. The scoring of variables was as follows:

Sample

1. 1960-61 NDEA group = 2; all others = 1
2. 1961-62 NDEA group = 2; all others = 1
3. Comparison group = 2; all others = 1

Program Descriptive Variables

4. 3 year NDEA award = 2; all others = 1
5. 2 year NDEA award = 2; all others = 1
6. 1 year NDEA award = 2; all others = 1
7. Tenure completion = 2; all others = 1
8. Having graduate training prior to NDEA Fellowship receipt = 2; all others = 1
9. Leaving NDEA granting institution = 2; all others = 1

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[5]The "dummy" variable is a method which allows introduction of variables that are not conventionally measured on a numerical scale, such as sex, race, study fields, occupation, etc. See Daniel B. Suits, "Use of Dummy Variables in Regression Equations," Journal of American Statistical Association, 1957, 52, 548-551.

Study Fields

10. Natural Sciences (Physical & Biological Sciences, + Engineering) = 2; all others = 1

11. Social Sciences (including Psychology) = 2; all others = 1

12. Business and Professions = 2; all others = 1

13. Humanities = 2; all others = 1

14. Education = 2; all others = 1

Work Schedule

15. Full-time on coursework = 2; all others = 1

16. Full-time on dissertation = 2; all others = 1

Degrees

17. M. A. = 2; all others = 1

18. Ph. D. = 2; all others = 1

19. Duration of doctoral completion

NDEA Institution Regions

20. New England = 2; all others = 1

21. Middle Atlantic = 2; all others = 1

22. East North Central = 2; all others = 1

23. West North Central = 2; all others = 1

24. South Atlantic = 2; all others = 1

25. East South Central = 2; all others = 1

26. West South Central = 2; all others = 1

27. Mountain Regions = 2; all others = 1

28. Pacific = 2; all others = 1

Demographic Background

29. Sex: male = 2; female = 1

30. Married during first year = 2; all others = 1

31. Married during second year = 2; all others = 1

32. Married during third year = 2; all others = 1

33. Married during fourth year = 2; all others = 1

34. Married during fifth year = 2; all others = 1

35. Now married = 2; all others = 1

36. Size of high school graduation town: scale (higher = major urban area)

Socioeconomic Indices

37. Father's occupation

38. Father: unskilled laborer = 2; all others = 1

39. Father: skilled or semi-skilled worker = 2; all others = 1

40. Father: salesman or clerical worker = 2; all others = 1

41. Father: technician or semi-professional worker = 2; all others = 1

42. Father: farm owner or manager = 2; all others = 1

43. Father: teacher or other educator = 2; all others = 1

44. Father: proprietor, manager, business official = 2; all others = 1

45. Father: other professional = 2; all others = 1

46. Father's education

47. Mother's education

48. Parental income

49. SES Scale (Father's education & occupation, mother's education, parental income)

Academic Background

50. Undergraduate grade letter average

51. GRE verbal score

52. GRE quantitative score

53. Field continuity: Undergraduate and doctoral field same = 2; all others = 1

Attitudes Toward Predoctoral Studies

54. Doctorate perceived as important for future career objectives = 2; all others = 1

Satisfaction with the amount of emphasis placed on:

55. Dissertation

56. Major field coursework

57. Minor field coursework

58. Other required coursework

59. Language or tool requirements

60. Satisfaction scale (total scale points of above)

Adequacy of the following aspects of the program:

61. Opportunity for study-related experience prior to dissertation

62. Accessibility of faculty for individual consultation

63. Freedom to adjust program to individual academic interest

64. Assistance and direction received from thesis advisor

65. Cooperation from dissertation committee

66. Adequacy scale (total scale points of above)

Sources of difficulty during predoctoral studies:

67. Family obligations

68. Military service

69. Financial problems

70. Loss of interest

71. Unsatisfactory academic progress

72. Changes in academic interests

73. Poor courses

74. Inaccessibility of faculty

75. Holding a teaching assistantship

76. Holding a reasearch assistantship

77. General exams

78. Foreign language requirements

79. Dissertation in general

80. Dissertation committee

81. Changes in dissertation topic

82. Writing dissertation off-campus

83. Other

84. Difficulty scale (total scale points of above)

Employment Variables

85. Full-time employed = 2; all others = 1

86. Part-time employed = 2; all others = 1

87. Employed either full- or part-time = 2; all others = 1

88. Current employer academic { (includes college or university, junior college or technical institute, secondary school system, and elementary school system) = 2; all others = 1

89. Ideal employer academic = 2; all others = 1

Activities central to long-run career objectives:

90. College or university teaching = 2; all others = 1

91. Other teaching = 2; all others = 1

92. Administration or management = 2; all others = 1

93. Research and development = 2; all others = 1

94. Service to patients and clients = 2; all others = 1

95. Sales and promotion = 2; all others = 1

96. Consultation = 2; all others = 1

97. Other = 2; all others = 1

Reasons for Teaching

98. Academic employment offers economic serurity = 2; all others = 1

99. Academic employment offers prestige = 2; all others = 1

100. Have obligation to teach, due to financial support received = 2; all others = 1

101. Offers intellectual stimulation = 2; all others = 1

102. Opportunity to keep up to date within one's field = 2; all others = 1

103. My greatest ability as a teacher = 2; all others = 1

104. Best way for me to work in my chosen field = 2; all others = 1

105. Offers opportunity for research and writing = 2; all others = 1

APPENDIX C

QUESTIONNAIRE

THE BUREAU OF SOCIAL SCIENCE RESEARCH is a nonprofit institution devoted to research and training in the social sciences. Established in 1950 as a university-affiliated research center, the Bureau was separately incorporated in the District of Columbia in 1956.

THE RESEARCH PROGRAM of the Bureau has ranged over a wide spectrum in the social sciences, including:

—educational research
—low income families and public assistance
—suicide
—drug usage
—crime victimization and law enforcement
—military sociology

EDUCATIONAL RESEARCH recently completed or currently in progress includes:

—characteristics of graduate departments in the social sciences
—support of higher education
—two-year and five-year follow-ups of college graduates
—a survey of public junior colleges
—effectiveness of educational training programs
—effectiveness of vocational and technical education
—staffing patterns in elementary and secondary schools
—the use of audiovisual media in public schools

BUREAU OF SOCIAL SCIENCE RESEARCH, INC.
1200 SEVENTEENTH STREET, N.W., WASHINGTON, D. C. 20036
TELEPHONE (202) 223-4300

March 1969

Dear Sir or Madam:

Doctoral studies require a great investment in years and dollars and the road to the degree is paved with hazards. Doctoral recipients average over eight years between the bachelor's and doctorate and the ranks of ABD's (those with "all but the dissertation") appear to be growing rapidly. In order to obtain an overview of the educational progress of doctoral candidates and its relationship to career patterns, the U.S. Office of Education has asked the Bureau of Social Science Research to conduct a longitudinal study of a cohort of people who initially enrolled for a doctoral program in 1960 or 1961.

We would like to request your cooperation for this study. Your name has been supplied to us by the institution where you entered a doctoral program. As you will see from the questions, we want you to give us a history of your educational and professional career as well as comments on factors which affected your progress towards attaining the doctorate.

Let me emphasize three important points:

1. We would like you to answer the questionnaire whether or not you have ever received the doctorate. We want to obtain a complete picture for everyone who initially enrolled in a doctoral program, even though they may have dropped out shortly thereafter.

2. In answering some of the questions, please substitute your best estimate whenever you do not have exact information on hand.

3. Your name will not be associated with the survey in any way. All information is treated confidentially.

I hope that you will find the questionnaire interesting and pertinent. Please feel free to add comments wherever you feel that the choice of answers provided on the questionnaire is not appropriate. If you have any questions concerning the survey, do not hesitate to write to me. We are most grateful for your cooperation and hope that you will help us in carrying through this important study. We feel sure the study will make a significant contribution at a time when new policies for the administration and financing of graduate programs are being explored by the universities and federal agencies responsible for graduate study support.

Sincerely yours,

Laure M. Sharp

Laure M. Sharp
Study Director

LMS:jmm

TRUSTEES: W. PHILLIPS DAVISON, ROBERT T. BOWER, ELLSWORTH BUNKER, G. FRANKLIN EDWARDS, GEORGE GALLUP, ALFRED WINSLOW JONES, PAUL F. LAZARSFELD, HERBERT J. MILLER, JR., M. BREWSTER SMITH, PAUL A. SMITH

Budget Bureau # 51-S68023
Approval expires 12/31/69

STUDY OF DOCTORAL CANDIDATES

1. *Please complete this questionnaire at your earliest convenience.*
2. *Disregard the small numbers next to the boxes and the column of numbers to the right. These are simply to help in coding and tabulating.*
3. *To mail: follow instructions inside back cover. No envelope is needed.*

* * * * I. GRADUATE EDUCATION * * * *

1. Did you enroll in a graduate program in either the 1960-61 academic year or the 1961-62 academic year with the intention of eventually obtaining a doctorate? CHECK ONE BOX.

Enrolled in 1960-61 ☐ 0

Enrolled in 1961-62 ☐ 1

Did not enroll in either 1960-61 or 1961-62 ☐ 2

10/3

(If you checked this box your name has been included by mistake. Please sign your name and return the questionnaire without answering following questions.

2. Please list below in chronological order the collegiate and graduate institutions you have attended, beginning with the school from which you received your undergraduate degree. Give dates of attendance, your major field (e.g. botany, chemical engineering, etc. – see list of fields inside back cover), degrees received and the dates of the degrees. Please be sure to exclude from the table any periods of time when you were not enrolled during the regular academic year (not counting summer sessions).

INSTITUTION		ATTENDANCE		MAJOR FIELD OF STUDY		DEGREES RECEIVED	
NAME	STATE	FROM MO. YR.	TO MO. YR.	CODE[a]	SPECIFIC FIELD	TYPE	DATE MO. YR.
		/	/				/
		/	/				/
		/	/				/
		/	/				/
		/	/				/

[a]Enter code number from list of fields on inside of back cover.

OE FORM 5238, 2-69

3. Please indicate below your current status with respect to the following requirements for the doctorate. For those requirements which you have completed, also record the date (month and year) in which they were completed. CHECK ONE BOX ON EACH LINE.

	Not Required	Not Started	In Progress	Completed		If Completed Month/Year	
All coursework requirements	☐ 3	☐ 0	☐ 1	☐ 2	11/4	___/___	12-15/0
All residence requirements	☐ 3	☐ 0	☐ 1	☐ 2	16/4	___/___	17-20/0
Passed the general qualifying exams	☐ 3	☐ 0	☐ 1	☐ 2	21/4	___/___	22-25/0
Completed language or tool requirements	☐ 3	☐ 0	☐ 1	☐ 2	26/4	___/___	27-30/0
Dissertation topic approved	☐ 3	☐ 0	☐ 1	☐ 2	31/4	___/___	32-35/0
Finished collecting data for dissertation	☐ 3	☐ 0	☐ 1	☐ 2	36/4	___/___	37-40/0
Submitted draft of dissertation	☐ 3	☐ 0	☐ 1	☐ 2	41/4	___/___	42-45/0
Dissertation approved	☐ 3	☐ 0	☐ 1	☐ 2	46/4	___/___	47-50/0

4. Did you study full-time without any interruptions (during the regular academic year) while working on your doctoral coursework?

Yes, I studied continuously, full-time	☐ 0	
No, I interrupted my studies or studied part-time some of the time	☐ 1	51/2

5. Did you work on your dissertation full-time without any interruptions?

Yes, I worked on the dissertation continuously, full-time	☐ 0	
No, I interrupted my work on the dissertation or worked on it part-time some of the time	☐ 1	52/2

6. How do you feel about the relative emphasis placed by your university on various components of your doctoral program? CHECK ONE BOX ON EACH LINE.

	Too Much Emphasis	Right Amount of Emphasis	Not Enough Emphasis	No Emphasis	Does Not Apply to Me/My Program	
Doctoral dissertation	☐ 0	☐ 1	☐ 2	☐ 3	☐ 5	53/4
Coursework in major field	☐ 0	☐ 1	☐ 2	☐ 3	☐ 5	54/4
Coursework in minor field	☐ 0	☐ 1	☐ 2	☐ 3	☐ 5	55/4
Other required coursework	☐ 0	☐ 1	☐ 2	☐ 3	☐ 5	56/4
Language or tool requirement	☐ 0	☐ 1	☐ 2	☐ 3	☐ 5	57/4

7. How adequate was your doctoral program with respect to the following areas? CHECK ONE BOX ON EACH LINE.

	Very Adequate	Adequate	Somewhat Adequate	Very Inadequate	Does Not Apply to Me/My Program	
Opportunity for study-related experience prior to dissertation	☐ 0	☐ 1	☐ 2	☐ 3	☐ 5	58/4
Accessibility of faculty for individual consultation	☐ 0	☐ 1	☐ 2	☐ 3	☐ 5	59/4
Freedom to adjust program to individual academic interests	☐ 0	☐ 1	☐ 2	☐ 3	☐ 5	60/4
Assistance and direction from thesis advisor	☐ 0	☐ 1	☐ 2	☐ 3	☐ 5	61/4
Cooperation from dissertation committee	☐ 0	☐ 1	☐ 2	☐ 3	☐ 5	62/4

8. From your personal experience as a doctoral candidate, do you believe the amount of time required to obtain a doctorate could be shortened without significantly reducing the meaningfulness of the doctoral degree?

Yes ☐ 0 No ☐ 1 63/2

NOTE: In Question 9 and all following questions which refer to "predoctoral studies," predoctoral studies are considered to be all graduate studies prior to receipt of the doctorate, including master's program, if applicable.

9. To what extent did each of the following factors create difficulty for you during your predoctoral studies? CHECK ONE BOX ON EACH LINE.

	Created Considerable Difficulty	Created Some Difficulty	Created No Difficulty	Does Not Apply	
1. Family obligations	☐ 2	☐ 1	☐ 0	☐ 3	64/4
2. Military service	☐ 2	☐ 1	☐ 0	☐ 3	65/4
3. Financial problems	☐ 2	☐ 1	☐ 0	☐ 3	66/4
4. Loss of interest	☐ 2	☐ 1	☐ 0	☐ 3	67/4
5. Unsatisfactory academic progress	☐ 2	☐ 1	☐ 0	☐ 3	68/4
6. Changes in academic interests	☐ 2	☐ 1	☐ 0	☐ 3	69/4
7. Poor courses	☐ 2	☐ 1	☐ 0	☐ 3	70/4
8. Inaccessibility of faculty	☐ 2	☐ 1	☐ 0	☐ 3	71/4
9. Holding a teaching assistantship	☐ 2	☐ 1	☐ 0	☐ 3	72/4
10. Holding a research assistantship	☐ 2	☐ 1	☐ 0	☐ 3	73/4
11. Difficulties with general exams	☐ 2	☐ 1	☐ 0	☐ 3	74/4
12. Difficulties with foreign language requirement	☐ 2	☐ 1	☐ 0	☐ 3	75/4
13. Difficulties with dissertation, in general (topic too broad, found writing difficult, etc.)	☐ 2	☐ 1	☐ 0	☐ 3	76/4
14. Difficulties with dissertation committee	☐ 2	☐ 1	☐ 0	☐ 3	77/4
15. Changes in dissertation topic	☐ 2	☐ 1	☐ 0	☐ 3	10/4
16. Writing dissertation off-campus while employed full-time	☐ 2	☐ 1	☐ 0	☐ 3	11/4
17. Other (Specify): _____					
_____	☐ 2	☐ 1	☐ 0	☐ 3	12/4

9a. Please rank the three items which you consider the first, second and third most serious difficulties you encountered in your predoctoral studies. (Write the number preceding the item here.)

First: _____ Second: _____ Third: _____ 13–14/18 15–16/18 17–18/18

10. Please indicate below by source all funds which you utilized to meet living and study expenses during each of your first five years of predoctoral study. Include tuition as a part of a fellowship or scholarship even if it was paid directly to the university. Please identify the beginning of the academic year at the top of each column and do not report any year during which you were not studying. If you terminated your studies during this five year period, check the year in which you terminated.

	1st Year	2nd Year	3rd Year	4th Year	5th Year
Please identify academic year	19___	19___	19___	19___	19___
If terminated, check year	☐	☐	☐	☐	☐
Fellowships or Scholarships[a] (Include tuition if paid directly by sponsor of fellowship or scholarship)					
NDEA Title IV Fellowship	$_____	$_____	$_____	$_____	$_____
NDEA Title VI Fellowship (NDFL)	$_____	$_____	$_____	$_____	$_____
National Science Foundation	$_____	$_____	$_____	$_____	$_____
Public Health Service (NIH, NIMH)	$_____	$_____	$_____	$_____	$_____
Other Federal Government	$_____	$_____	$_____	$_____	$_____
State or local government	$_____	$_____	$_____	$_____	$_____
School or university where enrolled	$_____	$_____	$_____	$_____	$_____
Private foundation, philanthropic organization, etc.	$_____	$_____	$_____	$_____	$_____
Industrial or business corporation or firm	$_____	$_____	$_____	$_____	$_____
Other fellowships or scholarships (Specify): _____	$_____	$_____	$_____	$_____	$_____
Assistantships[a]	$_____	$_____	$_____	$_____	$_____
Other Funds[a]					
Own earnings	$_____	$_____	$_____	$_____	$_____
Spouse's earnings	$_____	$_____	$_____	$_____	$_____
Gifts from parents or relatives	$_____	$_____	$_____	$_____	$_____
Funds obtained through loans	$_____	$_____	$_____	$_____	$_____
Withdrawals from savings	$_____	$_____	$_____	$_____	$_____
Other income (Specify): _____	$_____	$_____	$_____	$_____	$_____
Total Amount	$_____	$_____	$_____	$_____	$_____

[a]If you cannot recall the exact amount, please substitute your best estimate.

11. Have you ever held a National Defense Education Act Title IV (NDEA) Graduate Fellowship? (Do not count loans.)

Yes, a three-year award	☐ 0	
Yes, a two-year award	☐ 1	
Yes, a one-year award	☐ 2	
No (Skip to Q.12.)	☐ 3	19/4

11a. IF YES: Did you continue to hold the fellowship for the complete duration of the award?

Yes	☐ 0	
No, discontinued studies because of:		
Changes in field	☐ 1	
Changes in school	☐ 2	
Unsatisfactory academic progress	☐ 3	
Change in career plans	☐ 4	
Personal reasons (e.g. illness, marriage)	☐ 5	
Completed doctoral requirements early	☐ 6	
Other reason (Specify): _____	☐ 7	20/8

_____

12. Have you been awarded the doctorate?

Yes (Skip to Q.14, page 9.)	☐ 1	
No (Continue with Q.13.)	☐ 0	21/2

IF YOU HAVE NOT RECEIVED THE DOCTORATE, ANSWER Q.13.

13. Do you intend to complete all doctoral requirements and have your degree awarded at some time in the future?

YES	(Answer left-hand column)	☐ 0
NO	(Answer right-hand column)	☐ 1
NOT SURE	(Answer right-hand column)	☐ 2

22/3

IF YES:

13a. Please give the date you expect your doctorate to be awarded.

_____/_____
Month Year

Don't Know ☐ 23-26/0

13b. Do you intend to receive the doctorate from the program you entered in 1960 or 1961?

YES ☐ 0

NO ☐ 1 27/2

13c. Are you currently working on the doctoral requirements which you have not yet completed?

Yes, full time ☐ 0

Yes, about half-time ☐ 1

Yes, occasionally ☐ 2

No ☐ 3 28/4

IF NO OR NOT SURE:

13d. Why have you discontinued or considered discontinuing your doctoral studies? CHECK ALL THAT APPLY.

0. Encountered difficulties with the coursework ☐ 1 29/0
1. Encountered difficulties with the qualifying examinations ☐ 1 30/0
2. Encountered difficulties with the dissertation ☐ 1 31/0
3. Became dissatisfied with the doctoral program ☐ 1 32/0
4. Decided I did not need a doctorate to fulfill my career goal ☐ 1 33/0
5. Changed my career goal ☐ 1 34/0
6. Unable to continue because of financial reasons ☐ 1 35/0
7. Discontinued studies to get married ☐ 1 36/0
8. Other (Specify): _____ ☐ 1 37/0

_____

13.e Please rank your three most important reasons for not continuing your doctoral studies. (Write the number preceding the item here.)

38-40/9

____ First ____ Second ____ Third

* * * * II. EMPLOYMENT HISTORY * * * *

14. What is your current employment status? CHECK AS MANY AS APPLY.

1. Employed full-time (including self-employment)*	☐ 1	41/0
2. Employed part-time (less than 30 hrs. per week)*	☐ 1	42/0
3. On active duty in armed forces	☐ 1	43/0
4. Unemployed and looking for work	☐ 1	44/0
5. Full-time student	☐ 1	45/0
6. Part-time student	☐ 1	46/0
7. Housewife	☐ 1	47/0
8. Retired, disabled, etc.	☐ 1	48/0

*If you are employed, but temporarily not working because of illness or vacation, check EMPLOYED.

IF YOU DID NOT CHECK ANSWER 1, 2, OR 3 ABOVE, SKIP TO Q.18.

15. Are you currently employed in the same academic field in which you undertook your doctoral studies?

Yes	☐ 0	
No: Please specify your current position and field.		
_____	☐ 1	49/4

16. Please check below the one category which best describes your major current employer.

College or University	☐ 0	Federal Government (except Military)	☐ 5	
Junior College or Technical Institute	☐ 1	State or Local Government	☐ 6	
Secondary school system	☐ 2	Nonprofit Organization (Including Hospitals, etc.)	☐ 7	
Elementary school system	☐ 3	Other (Specify):		
Industry, manufacturing, business firm, profit-making organization	☐ 4	_____	☐ 8	50/9

17. The following activities cut across a number of specific occupations. Please check all that are central to your current job(s).

1. College or university teaching	☐ 1	51/0
2. Other teaching	☐ 1	52/0
3. Administration or Management	☐ 1	53/0
4. Research and development	☐ 1	54/0
5. Service to patients or clients	☐ 1	55/0
6. Sales and promotion	☐ 1	56/0
7. Consultation	☐ 1	57/0
8. Other (Specify): _____	☐ 1	58/0

17a. If you checked more than one activity, which *one* is most central to your current job? (Write the number preceding the item here.)

Most Central Activity: _____ 59/0

18. How many months or years of professional work experience have you had since 1961 in each of the areas listed below?

	Number of Months	Number of Years	
College or university teaching	_____	_____	60-61/00
Other teaching	_____	_____	62-63/00
Administration or management	_____	_____	64-65/00
Research and development	_____	_____	66-67/00
Service to patients or clients	_____	_____	68-69/00
Sales and promotion	_____	_____	70-71/00
Consultation	_____	_____	72-73/00
Other (Specify): _____			
_____	_____	_____	74-75/00
TOTAL	_____	_____	76-77/00

19. Please check the category which best describes your ideal long run career employer.

College or University	☐ 0	State or Local Government	☐ 5
Junior College or Technical Institute	☐ 1	Nonprofit Organization (Including Hospitals, etc.)	☐ 6
Elementary or Secondary School System	☐ 2	Other (Specify):	
Industry, Manufacturing, business firm, profit-making organization	☐ 3	_____	☐ 7
Federal Government (except Military)	☐ 4	Don't Know or Undecided	☐ 8

10/9

20. Which of the following activities are central to your long run career objectives? CHECK ALL THAT APPLY.

1. College or university teaching	☐ 1	11/0
2. Other teaching	☐ 1	12/0
3. Administration or management	☐ 1	13/0
4. Research and development	☐ 1	14/0
5. Service to patients or clients	☐ 1	15/0
6. Sales and promotion	☐ 1	16/0
7. Consultation	☐ 1	17/0
8. Other (Specify): _____	☐ 1	18/0

20a. If you checked more than one activity, which *one* is most central to your long run career objectives? (Write the number preceding the item here.)

Most Central Activity: _____ 19/0

21. How important do you feel the doctoral degree is for success in your long run career objective?

Absolutely necessary	☐ 0	
Very important, but not absolutely necessary	☐ 1	
Rather important	☐ 2	
Not very important	☐ 3	20/4

22. What would you say is the chance that you might teach (or continue to teach) at a college or university at some time in the future? (Circle the percentage which approximates your best estimate.)

Definitely Won't Teach										Definitely Will Teach	
0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	21-22/11

IF LESS THAN 50% *AND* YOU HAVE NOT TAUGHT AT A COLLEGE OR UNIVERSITY IN THE PAST, SKIP TO Q.23. OTHERWISE CONTINUE WITH Q.22a.

22a. How important is (was) each of the following in influencing you to consider entering college teaching? CHECK ONE BOX ON EACH LINE.

	Very Important	Somewhat Important	Not Important	
I like the relative flexibility and freedom in time scheduling	☐ 2	☐ 1	☐ 0	23/3
I feel teaching offers economic security	☐ 2	☐ 1	☐ 0	24/3
I feel teaching offers one a position of prestige	☐ 2	☐ 1	☐ 0	25/3
I feel an obligation to teach because of the financial support I obtained in graduate school	☐ 2	☐ 1	☐ 0	26/3
I feel that teaching offers intellectual stimulation from students and colleagues	☐ 2	☐ 1	☐ 0	27/3
I feel teaching offers an exceptional opportunity to keep up to date in one's field	☐ 2	☐ 1	☐ 0	28/3
I feel that my greatest ability is as a teacher	☐ 2	☐ 1	☐ 0	29/3
I think that teaching is the best way for me to work in my chosen field	☐ 2	☐ 1	☐ 0	30/3
I feel that a university position provides excellent opportunities for research and writing	☐ 2	☐ 1	☐ 0	31/3

* * * * III. BACKGROUND INFORMATION * * * *

23. Please check *all* that apply to you:

a. Male ☐ 0 Female ☐ 1 32/2

b. White ☐ 0 Negro ☐ 1 Other ☐ 2 33/3

c. U.S. Citizen ☐ 0 Other ☐ 1 34/2

24. When were you born?

____/____ 35-38/00
Month Year

25. Please complete the following table indicating your marital status and number of dependents (other than yourself) during each of your first five years of predoctoral study and at present.

	Single	Married	Widowed, Divorced, Separated		Number of Dependents	
First year	☐ 0	☐ 1	☐ 2	39/3	_____	45/9
Second year	☐ 0	☐ 1	☐ 2	40/3	_____	46/9
Third year	☐ 0	☐ 1	☐ 2	41/3	_____	47/9
Fourth year	☐ 0	☐ 1	☐ 2	42/3	_____	48/9
Fifth year	☐ 0	☐ 1	☐ 2	43/3	_____	49/9
At present	☐ 0	☐ 1	☐ 2	44/3	_____	50/9

26. What were your 1968 annual earnings before taxes? (Include all professional income. Do not include interest, dividends or spouses' earnings, etc.)

Less than $5,000	☐ 0	$15,000 - $19,999	☐ 4	
$ 5,000 - $ 7,499	☐ 1	$20,000 - $24,999	☐ 5	51/7
$ 7,500 - $ 9,999	☐ 2	$25,000 and over	☐ 6	
$10,000 - $14,999	☐ 3			

27. What was your father's major occupation at the time you graduated from college?

Teacher or other educator	☐ 0
Other professional (e.g. pharmacist, dentist, engineer, scientist, lawyer, doctor, etc.)	☐ 1
Proprietor, manager, business official or executive (e.g. store owner, contractor, factory supervisor, personnel director, etc.)	☐ 2
Farm owner or manager	☐ 3
Technician or semi-professional worker (e.g. laboratory technician, draftsman, etc.)	☐ 4
Salesman (wholesale or retail) or clerical worker (office worker, bookkeeper, office machine operator, etc.)	☐ 5
Skilled or semi-skilled operative or service worker (e.g. foreman, craftsman, factory machine operator, bus driver, policeman, fireman, waiter, barber, cook, etc.)	☐ 6
Unskilled laborer or farm worker	☐ 7
Other (Specify): _____	☐ 8

52/9

28. What is the highest level of education attained by each of your parents? CHECK ONE IN EACH COLUMN.

	Father	Mother
Less than high school graduate	☐ 0	☐ 0
High school graduate	☐ 1	☐ 1
Some college	☐ 2	☐ 2
College graduate	☐ 3	☐ 3
Postgraduate study	☐ 4	☐ 4

53-54/5

29. What was your parents' total annual income (before taxes) at the time you graduated from college? (If you cannot recall the exact amount, please substitute your best estimate.)

Less than $5,000	☐ 0	$15,000 - $19,999	☐ 4
$ 5,000 - $ 7,499	☐ 1	$20,000 - $24,999	☐ 5
$ 7,500 - $ 9,999	☐ 2	$25,000 and over	☐ 6
$10,000 - $14,999	☐ 3	Don't Know	☐ 7

55/8

30. Please indicate below the size of the town or city in which you lived at graduation from high school and the town or city in which you currently reside. CHECK ONE IN EACH COLUMN.

	Graduation from High School	Current Residence	
A major city or suburb thereof (250,000 or more)	☐ 0	☐ 0	
Other city or suburb thereof (50,000 - 249,999)	☐ 1	☐ 1	
A large town (2,500 - 49,999)	☐ 2	☐ 2	56-57/4
A small town or rural area	☐ 3	☐ 3	

31. In which state did you live at each of these times?

	State	
Graduation from high school	_____	58-59/00
Current residence	_____	60-61/00

32. Have you ever served in the armed forces?

Yes, after graduate studies or currently	☐ 0	
Yes, during an interruption of graduate studies	☐ 1	
Yes, while a graduate student	☐ 2	
Yes, prior to graduate studies	☐ 3	
No	☐ 4	62/5

33. Please check below the letter grade which most closely corresponds to your undergraduate average.

☐ 0 A+ ☐ 1 A ☐ 2 A- ☐ 3 B+ ☐ 4 B ☐ 5 B- ☐ 6 C+ ☐ 7 C or less 63/8

34. Have you ever taken the Graduate Record Aptitude Examination?

Yes ☐ 0 No ☐ 1 64/2

34a. IF YES: Please check the categories corresponding to your verbal and quantitative scores (to the best of your memory). CHECK ONE IN EACH COLUMN.

	Verbal Score	Quantitative Score
Less than 400	☐ 0	☐ 0
400 to 499	☐ 1	☐ 1
500 to 599	☐ 2	☐ 2
600 to 699	☐ 3	☐ 3
700 to 799	☐ 4	☐ 4
800 or over	☐ 5	☐ 5
Don't Remember	☐ 6	☐ 6

65-66/7

THANK YOU VERY MUCH; THIS COMPLETES THE QUESTIONNAIRE. Please print your name below so that we can record your response and exclude you from our follow-up mailings. As noted earlier, your replies will be kept strictly confidential. Absolutely no data will be released that is identified with your name.

Please print: _____ / _____

Name Date

CODES FOR FIELD OF STUDY

EDUCATION

00 Comparative Education
01 Counseling & Guidance
02 Educational Administration
03 Educational Psychology
04 Elementary & Secondary Education
05 Special Education
06 Teaching in Science Fields
07 Teaching in Non-science Fields
08 Education–Other (Measurement, History & Philosophy, etc.)

HUMANITIES

10 American Studies
11 Classics
12 Comparative Literature
13 English
14 Linguistics
15 Modern Languages–Germanic
16 Modern Languages–Romance
17 Modern Languages–Other
18 Music & Fine Arts
19 Philosophy
20 Speech & Drama
21 Humanities–Other (General, Journalism, etc.)

BUSINESS ADMINISTRATION

30 All Business

SOCIAL SCIENCES

40 Agricultural Economics
41 Anthropology
42 Area Studies
43 City Planning
44 Economics
45 Geography
46 History
47 History & Philosophy of Science
48 International Relations
49 Political Science, Government & Public Administration
50 Sociology
51 Sociology & Anthropology
52 Social Sciences–Other

PSYCHOLOGICAL SCIENCES

60 All Psychology except Educational Psychology. (Code Educational Psychology as 03.)

BIOLOGICAL SCIENCES

70 Agronomy, Soils, Forestry
71 Animal Science, Agriculture, Foods
72 Bacteriology & Microbiology
73 Biochemistry, Biophysics, Pharmacy
74 Biology-General
75 Botany, Plant Science
76 Entomology
77 Genetics, Medical Sciences, Zoology, Anatomy, Physiology
78 Speech & Hearing Science
79 Biological Sciences–Other

PHYSICAL SCIENCES

80 Astronomy
81 Chemistry
82 Computer Science
83 Geology & Earth Sciences
84 Mathematics & Statistics
85 Oceanography & Meteorology
86 Physics
87 Physical Sciences–Other

ENGINEERING

90 Ceramic Engineering
91 Chemical Engineering
92 Civil Engineering
93 Electrical Engineering
94 Engineering Science
95 Mechanical Engineering & Engineering Mechanics
96 Metallurgical Engineering
97 Engineering–Other (Aerospace, Geological, Industrial, Nuclear, General, etc.)

NO ENVELOPE OR POSTAGE NECESSARY TO MAIL THIS QUESTIONNAIRE

TO MAIL:

Open back flap, moisten gummed edge, fold, and seal to front cover. Business reply panel will now be visible, and questionnaire may be mailed flat.

FIRST CLASS
PERMIT NO. 33451
WASHINGTON, D.C.

BUSINESS REPLY MAIL
NO POSTAGE STAMP NECESSARY IF MAILED IN THE UNITED STATES

POSTAGE WILL BE PAID BY

STUDY OF DOCTORAL CANDIDATES
BUREAU OF SOCIAL SCIENCE RESEARCH, INC.
1200 SEVENTEENTH STREET, N.W.
WASHINGTON, D.C. 20036

235

APPENDIX D

1. CODES FOR FIELD OF STUDY

2. REGION AND STATE CODE

1. CODES FOR FIELD OF STUDY

EDUCATION

00 Comparative Education
01 Counseling & Guidance
02 Educational Administration
03 Educational Psychology
04 Elementary & Secondary Education
05 Special Education
06 Teaching in Science Fields
07 Teaching in Nonscience Fields
08 Education--Other (Measurement, History & Philosophy, etc.)

HUMANITIES

10 American Studies
11 Classics
12 Comparative Literature
13 English
14 Linguistics
15 Modern Languages--Germanic
16 Modern Languages--Romance
17 Modern Languages--Other
18 Music & Fine Arts
19 Philosophy
20 Speech & Drama
21 Humanities--Other (General, Religion, Journalism, etc.)

BUSINESS AND OTHER PROFESSIONS[a]

30 All business
35 D.D.
36 LL.B.
37 M.D.

SOCIAL SCIENCES

40 Agricultural Economics
41 Anthropology
42 Area Studies
43 City Planning
44 Economics
45 Geography
46 History
47 History & Philosophy of Science
48 International Relations
49 Political Science, Government & Public Administration
50 Sociology
51 Sociology & Anthropology
52 Social Sciences--Other (Geography, etc.)

PSYCHOLOGICAL SCIENCES

60 All Psychology except Educational Psychology. (Code Educational Psychology as 03.)

BIOLOGICAL SCIENCES

70 Agronomy, Soils, Forestry
71 Animal Science, Agriculture, Foods
72 Bacteriology & Microbiology
73 Biochemistry, Biophysics, Pharmacy
74 Biology-General
75 Botany, Plant Science
76 Entomology
77 Genetics, Medical Sciences, Zoology, Anatomy, Physiology
78 Speech & Hearing Science
79 Biological Sciences--Other (Ecology, etc.)

PHYSICAL SCIENCES

80 Astronomy
81 Chemistry
82 Computer Science
83 Geology & Earth Sciences
84 Mathematics & Statistics
85 Oceanography & Meteorology
86 Physics
87 Physical Sciences--Other

ENGINEERING

90 Ceramic Engineering
91 Chemical Engineering
92 Civil Engineering
93 Electrical Engineering
94 Engineering Science
95 Mechanical Engineering & Engineering Mechanics
96 Metallurgical Engineering
97 Engineering--Other (Aerospace, Geological, Industrial, Nuclear, General, etc.)

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[a]If a student was working toward a Ph.D. in religion and in medical sciences, he was included in Humanities and in Biological Sciences, respectively. If he was working toward a professional degree, LL.B. or M.D., he was included in Business and Other Professions.

2. REGION AND STATE CODE

REGION		CODE
The first digit of the code number represents the region:		
New England:	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut	1
Middle Atlantic:	New York, New Jersey, Pennsylvania	2
East North Central:	Ohio, Indiana, Illinois, Michigan, Wisconsin	3
West North Central:	Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas	4
South Atlantic:	Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, (Puerto Rico)	5
East South Central:	Kentucky, Tennessee, Alabama, Mississippi	6
West South Central:	Arkansas, Louisiana, Oklahoma, Texas	7
Mountain Regions:	Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada	8
Pacific:	Washington, Oregon, California, Hawaii, Alaska	9

STATE

The second digit of the code represents the state:

Alabama	62	Louisiana	71	Oklahoma	72
Alaska	14	Maine	10	Oregon	91
Arizona	85	Maryland	51	Pennsylvania	23
Arkansas	70	Massachusetts	13	(Puerto Rico)	59
California	92	Michigan	33	Rhode Island	14
Colorado	83	Minnesota	40	South Carolina	56
Connecticut	15	Mississippi	63	South Dakota	46
Delaware	50	Missouri	42	Tennessee	61
D.C.	52	Montana	80	Texas	73
Florida	58	Nebraska	47	Utah	86
Georgia	57	Nevada	87	Vermont	12
Hawaii	93	New Hampshire	11	Virginia	53
Idaho	81	New Jersey	22	Washington	90
Illinois	32	New Mexico	84	West Virginia	54
Indiana	31	New York	20*	Wisconsin	34
Iowa	41	North Carolina	55	Wyoming	82
Kansas	48	North Dakota	45		
Kentucky	60	Ohio	30		

NOTE: CODE "01" FOR NO ANSWER, "00" FOR DOES NOT APPLY, AND "02" FOR FOREIGN.

*In respondent ID numbers, "21" also represents New York.

NOTE: This code is based on the Bureau of the Census Code.

APPENDIX E

INSTITUTIONS GRANTING NDEA FELLOWSHIPS WHICH PARTICIPATED IN THIS STUDY

Institution
University of Maine
University of New Hampshire
University of Vermont
Boston College
Boston University
Brandeis University
Massachusetts Institute of Technology
Tufts University
University of Massachusetts
Worcester Polytechnical Institute
Brown University
University of Rhode Island
University of Connecticut
Alfred University
Clarkson College of Technology
Columbia University
Columbia University Teachers College
Cornell University
Fordham University
New School for Social Research
New York University
Polytechnical Institute of Brooklyn
Rensselaer Polytechnical Institute
Syracuse University
State University of New York at Buffalo
University of Rochester
Yeshiva University
Newark College of Engineering
Rutgers, The State University
Stevens Institute of Technology
Carnegie-Mellon University
Lehigh University
Pennsylvania State University
Temple University
University of Pennsylvania
University of Pittsburgh
Dropsie College
Case Western Reserve University
Kent State University
Ohio State University
Ohio University
University of Cincinnati
Ball State University
Indiana University
Purdue University

Institution
University of Notre Dame
Illinois Institute of Technology
Loyola University
Northwestern University
Southern Illinois University
University of Chicago
University of Illinois
Michigan State University
University of Michigan
Wayne State University
Marquette University
University of Wisconsin, Madison
University of Minnesota
Iowa State University
University of Iowa
St. Louis University
University of Missouri
University of Missouri, Rolla
Washington University, St. Louis
North Dakota State University
University of North Dakota
South Dakota State University
University of Nebraska
Kansas State University
University of Kansas
Wichita State University
University of Delaware
Johns Hopkins University
University of Maryland
American University
Catholic University of America
Georgetown University
George Washington University
Howard University
University of Virginia
Virginia Polytechnical Institute
West Virginia University
Duke University
University of North Carolina, Chapel Hill
North Carolina State University, Raleigh
Clemson University
University of South Carolina
Emory University
Georgia Institute of Technology
University of Georgia

Institution
Florida State University
University of Florida
University of Miami
University of Puerto Rico
University of Kentucky
University of Louisville
George Peabody College for Teachers
University of Tennessee
Vanderbilt University
Auburn University
University of Alabama
Mississippi State University
University of Mississippi
University of Arkansas
Louisiana State University
Tulane University
Oklahoma State University
University of Oklahoma
Texas A & M University
Baylor University
Rice University
Southern Methodist University
Texas Christian University
Texas Technological College
University of Houston
University of Texas
Montana State University

Institution
University of Montana
University of Idaho
University of Wyoming
Colorado State University
University of Colorado
University of Denver
New Mexico State University
University of New Mexico
Arizona State University
University of Arizona
University of Utah
Utah State University
University of Washington
Washington State University
Oregon State University
University of Oregon
California Institute of Technology
Claremont Graduate School and University Center
Occidental College
Stanford University
University of California, Berkeley
University of California, Davis
University of California, San Diego
University of California, Los Angeles
University of Southern California
University of Hawaii

APPENDIX F

LETTER TO DEANS RE SELECTION OF COMPARISON GROUP STUDENTS

BUREAU OF SOCIAL SCIENCE RESEARCH, INC.
1200 SEVENTEENTH STREET, N.W., WASHINGTON, D. C. 20036
TELEPHONE (202) 223-4300

April 22, 1968

Dear President:

The Bureau of Social Science Research is conducting a follow-up study of the NDEA Title IV Graduate Fellowship Program for the U. S. Office of Education. We have completed the first phase of the study based on secondary analysis of existing data (see enclosed summary), and are now undertaking a mail survey of NDEA Fellows and a comparison group of other doctoral candidates, focusing on the postfellowship careers of the recipients--specifically, their progress towards completion of the doctorate and recruitment into university teaching. We would like to request your assistance in identifying comparable doctoral candidates and in obtaining current addresses for both the NDEA Fellows and the comparison group.

We are surveying NDEA Grantees who were awarded the fellowship either in autumn 1960 or autumn 1961. The attached computer printout lists the names of these NDEA recipients from your university. Please arrange to have the most recent available addresses written in next to the names and return one copy in the enclosed envelope. We have provided two copies in case it is necessary to forward this request to some other office within the university.

For the comparison group, we would like to obtain the names and current addresses of all students who enrolled for their first year of graduate studies in the fall of 1960 in the same programs as the NDEA recipients and who at that time intended to obtain a doctorate eventually. The enclosed form 397-1 lists the graduate programs in which we wish to obtain comparison groups. We realize that many programs and university record keeping systems do not permit distinguishing those who intend to obtain a doctorate from those who intend a master's degree. Please indicate on the form for each program whether or not it is possible to obtain the requested data. For programs where the data are available, please obtain a list of the appropriate names and addresses to return to us with the enclosed form.

Thank you very much for your cooperation and assistance. Please do not hesitate to write me if you have any questions or would like to obtain more information about the survey.

Sincerely yours,

Laure M. Sharp
Study Director

LMS:all

TRUSTEES W. PHILLIPS DAVISON ROBERT T. BOWER ELLSWORTH BUNKER G. FRANKLIN EDWARDS GEORGE GALLUP
ALFRED WINSLOW JONES PAUL F. LAZARSFELD HERBERT J. MILLER, JR. M. BREWSTER SMITH PAUL A. SMITH